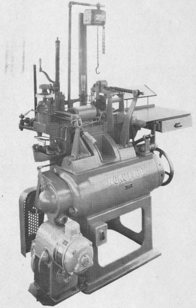
Adjustments of the Giant Caster

Lanston Monotype Company
Philadelphia, Pa.

Adjustments of the Giant Caster / Reprinted 1962



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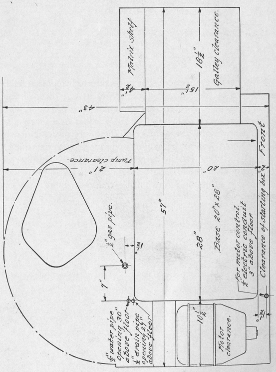


GIANT CASTER FLOOR PLAN

Important reference: The parts referred to in this book are shown in the figures on the plates at the back of the book. Numbers are used to designate the parts. Where parts are referred to in the text the number of each part is given, followed by the number of the figure on which each is to be found, except that when two or more parts mentioned consecutively are on the same figure the figure number is given only after the first part number. That is, all parts will be found on the one figure until a different figure number is given.

THE MONOTYPE SCHOOL

The following is the order of instructions used on the GIANT CASTER in the Monotype Casting Machine School.

1. TAKE THE MOLD OFF THE MACHINE AS FOLLOWS:

Turn the MACHINE by hand until the CROSS BLOCK 49 (Fig. 20) is at the front end of its stroke.

Pull forward the CLOSURE-CAM LEVER 46 (Fig. 18) and put a piece of material (for example, a 36-point quad) between the LEATHER BUFFER 34 and the face of the CASTING 39 that this LEATHER BUFFER 34 strikes against. This should be done whenever a MOLD is changed or a PACKING PIECE is changed.

Lower the MELTING POT and swing it out from under the MOLD.

Remove PIN 26 (Fig. 20), NUT and PIN 37, BUSHING 35, COVER PLATE 22 (Fig. 16), and MATRIX CARRIER 24. Disconnect water supply and DRAIN PIPES, SPRING 4 (Fig. 18) from LEVER 1, and CROSS BLOCK COUPLING 18 (Fig. 20). Swing BRIDGE LINKS 34 over toward the front of the MACHINE and remove BRIDGE SUPPORT 36.

Take out 5 BOLTS and their WASHERS, two of each are shown as Nos. 1 and 2 in Fig. 23 (also as Nos. 45, 46 and 47 in Fig. 20).

Remove the two ABUTMENT PLATES 32 (Fig. 16).

Slide the MOLD to the rear to clear the MOLD BLADE 7 and 8 (Fig. 16) from its SLIDE 19 (Fig. 14). Insert the CROSS BLOCK HOLDING SCREW and remove the MOLD UNIT complete from the MACHINE.

Take out 6 SCREWS and lift off the GALLEY PLATE from the GALLEY STAND 11 (Fig. 19).

2. SQUARING THE NOZZLE:

Follow the instructions on Pages 9, 10 and 11.

3. MOLD BASE OR NOZZLE SEAT ASSEMBLY ON THE MACHINE:

Follow the instructions on Pages 28, 29 and 30.

4. STOP PLATE AND CLOSURE:

Read Pages 23, 24 and 25.

5. CLOSURE OPENING:

Follow the instructions on Pages 25 and 26.

6. CLOSURE-CAM-LEVER BUFFER:

Follow the instructions on Page 26.

7. TAKE THE MOLD APART AT THE BENCH AS FOLLOWS:

Refer to Fig. 16 (Plate II) for the various parts to be taken off.

(*a*) Take off the BRACKET 23 and WEDGE 37.

(*b*) Take out the HOLDING SCREW and CROSS BLOCK 16.

(*c*) Take off the MOLD BLADE STOP 12 and slide the

Blade 7 out to the left complete with its Cores 10.

(*d*) Take off the Squaring Plate 5.

(*e*) Take out the three (3) Horizontal Bolts that go through the Bolsters 15 and 25 and the Distance Separator 27 which is on the right hand Bolt 19 (Fig. 23).

(*f*) Lift out the Point Block 6 and two (2) Type Blocks 14 and 26 (Fig. 16). Also take out the Type Clamp 31 and Pin 18.

(*g*) Take out the top Bolster Bolts 46 and 47 (Fig. 20) and take both Bolsters 15 and 25 off the Mold Base 33 (Fig. 16).

8. Assembly of the Mold at the Bench: Read the paragraph on Molds to be Reassembled on Page 30.
Follow the instructions on Pages 30, 31, 32 and 33.

9. Putting Mold Unit on the Machine:
Follow the instructions on Pages 33, 34 and 35.

10. Cross Block Adjustment:
Follow the instructions on Page 34.

11. Clamping Lever: Follow the instructions on Page 28.

12. Clutch Operating Rod:
Follow the instructions on Page 28.

13. Bridge: Follow the instructions on Pages 27 and 28.

14. Pump Mechanism Adjustment:

(*a*) Cleaning Nozzles—Follow the instructions on Page 11 under Cleaning Nozzles. Turn to Page 47 and read the paragraph on Nozzles.

(*b*) Cleaning the Pump Body—Follow the instructions on Pages 14, 15 and 16 under Cleaning the Pump Body.

(*c*) Follow the instructions on Pages 11, 12, 13 and 14 under Pump Mechanism Adjustment.

15. Calculating Scale Cylinder:
Follow the instructions under Operating Rod Adjustment, Automatic Pawl Release, Single Cast Non-fusion and Micrometer-wedge Screw on Pages 17, 18 and 19.

16. Use of Packing Pieces:
Follow the instructions on Pages 19, 20, 21 and 22. Also read Closure Setting with No. 0 Adjusting Packing Piece on Pages 36 and 37.

17. Micrometer Wedge Graduated Wheel:
Follow the instructions on Pages 42, 43, 44 and 45.

18. Changing Height of Product:
Follow the instructions on Pages 35 and 36.

19. Fusion: To run Fusion Material follow the instructions on Pages 22 and 23.

20. Read the other instructions on the various pages that we have not covered up to this time.

GIANT CASTER ADJUSTMENTS

The Machine described in this book is the Giant Caster. Its products include type, spaces, quads, corner pieces either low or high or with rule or decorative border face, furniture, base for cut mounting, electrotype bearers, and other specialties as may be required. It is unique in that it has no cutter but casts all of its products to any desired length, long or short, completely finished on both ends.

This book is prepared for the use of students in our Monotype School and for the guidance of all who operate the Giant Caster. A clear understanding of these adjustments is essential. Study them carefully, giving particular attention to the reason for each, as this will fix them more firmly in the mind.

Do not alter an adjustment until it has been tested and found incorrect. Make the adjustments carefully, following the directions exactly. Be sure all bolts, nuts, and screws are tight and test them all occasionally to see that they stay tight.

Keep the Machine clean and properly oiled. Use Monotype Type Mold Oil for the Machine parts but always use Monotype Rule Mold Oil for the Mold. A little Monotype Lubricating Paste in the Rule Mold Oil is beneficial.

The Molds and Mold Bases are most beautiful pieces of mechanism built with the precision of a watch and yet capable of producing ton after ton of type and material when given the proper care. Give them the treatment they deserve. Examine and clean them at regular intervals. Use a cloth free from lint for the cleaning. When carbon collects on these parts it should be removed. Remove only the built-up carbon deposit but not discoloration in the steel. A hard

Arkansas Stone is ideal for cleaning any of these parts. Extreme care must be exercised in its use so that the stone does not roll over an edge. It should be used with gasoline, kerosene or cleaning fluid. When the stone becomes dirty or flakes of metal adhere to it, clean it by rubbing it on a new and true fine Carborundum Stone with gasoline, kerosene or cleaning fluid. A ½″x½″x3″ hard Arkansas Stone has been found to be the most useful size.

The MOLD BASE, which includes the NOZZLE SEAT, STOP PLATE, GUIDE PLATES, etc., is built with the same precision as the MOLDS and, like the MOLDS, can be repaired and have parts replaced only in our factory. We furnish two complete MOLD BASES with each GIANT CASTER, hence one may be used while the other is returned for repair. Be sure to return a MOLD BASE as soon as it needs repair—do not keep it until the other needs repair also or the MACHINE may have to be shut down while they are both sent to us, because we have no loan GIANT MOLD BASES.

When ordering parts, use the plates in the back of this book. Give the name and symbol of the part from the translation list beside each plate, or if you prefer, give the number of the part and the number of the figure on which it is shown.

NOZZLE ADJUSTMENTS*

Two Adjustments

First: To insure that the axis of the NOZZLE is in a vertical position.

Second: To center the NOZZLE in the MOLD OPENING.

First

Object: That the axis of the NOZZLE when entered in the MOLD OPENING will be perpendicular to the MOLD, so that there will be a tight joint between the MOLD and the NOZZLE.

PRELIMINARY

If the MOLD is on the MACHINE it must be removed as follows: Lower the MELTING POT. Remove the PISTON and NOZZLE. Remove PIN 26 (Fig. 20), NUT 31, PIN 37, BUSHING 35, COVER PLATE 22 (Fig. 16) and MATRIX CARRIER 24. Disconnect water supply and drain PIPES, SPRING 4 (Fig. 18) from LEVER 1, and CROSS-BLOCK COUPLING 18 (Fig. 20). Swing BRIDGE LINKS 34 over toward the front of the MACHINE and remove the BRIDGE SUPPORT 36. Remove CLAMP 30 (Fig. 16) and the two ABUTMENT PLATES 32. Remove four BOLTS 46 (Fig. 20) and one BOLT 47.

Slide the MOLD to the rear to clear the MOLD BLADE 7 and 8 (Fig. 16) from its slide 19 (Fig. 14). Insert the CROSS-BLOCK HOLDING SCREW and remove the MOLD UNIT complete from the MACHINE.

Unscrew ROD 13 (Fig. 19), releasing SPRING 2. Remove GUIDE PLATE 28 (Fig. 16), CLOSURE 29, STOP PLATE 13, GUIDE PLATE 34 and NOZZLE SEAT 35. The NOZZLE SEAT and GUIDE PLATES are also shown as 26, 27, and 28 (Fig. 2) and are removed for this adjustment. Loosen the three SCREWS 24 (Fig. 2).

Raise the MELTING POT into position and with the PUMP TRIP released, turn the MACHINE to bring the PUMP up into casting position.

Screw the NOZZLE SQUARING PIN 1 (Fig. 1) into the PUMP in place of the NOZZLE 3 (Fig. 2). *Caution:* See that this PIN

*MACHINES prior to 9125 were supplied with a different MELTING POT, PUMP BODY, PISTON, NOZZLE and SWING-FRAME TABLE, from the standard parts now being used.

Be sure that the NOZZLE you are using is the correct one for your MACHINE. The NOZZLE for Style GC MOLDS on the earlier MACHINES was symboled 92GC8, and was 2 19/32″ long over all. The new style NOZZLE is symboled 92GC4 and is 2 11/32″ long over all.

is started squarely in the Pump and that it is screwed down until its shoulder is seated.

PROCEDURE

Loosen the Clamp Screw 18 (Fig. 2) and turn the Eccentric Pin 19 until the Pin 1 (Fig. 1) is square with the top of the Mold Base Plate 33 (Fig. 16). Test this to front and rear with a square resting on the top surface of the Mold Base. Tighten the Clamp Screw 18 (Fig. 2) and test again with the square to see that the adjustment holds.

The Pin 1 (Fig. 1) will stand square to right and left unless the Pump Body or its Lifting Lever 17 (Fig. 2) is badly worn, in which case they should be renewed.

Remove Squaring Pin 1 (Fig. 1).

Second

Object: That the Nozzle will enter the conical hole in the Nozzle Seat without dragging on the side of the cone.

PRELIMINARY

Screw Nozzle in place. Replace Nozzle Seat.

Caution: See that the Pump Piston is removed to avoid any possibility of a "squirt" of hot metal.

Place a packing between the top Operating-rod Nut 2 (Fig. 3) and the Operating-rod Lever 3, so that when the Pump is raised the Nozzle will stand about $\frac{1}{16}$″ below its position for contact with the Mold. Raise the Melting Pot into position. With the Pump Trip released, slowly turn the Machine to casting position, noting the travel of the Nozzle on its up stroke.

PROCEDURE

By moving the Pump on its supports inside the Pot to the right and left, and to the front and rear, the Nozzle can be seen to move slightly to one side or the other of the conical hole in the Nozzle Seat. The position of the Pot must be adjusted so that this slight movement of the Nozzle is equal in all four directions from the center of the conical hole in the Nozzle Seat.

To move the Nozzle to the front or rear, turn the Adjusting Screw 21 (Fig. 2) in the required direction.

To move the Nozzle to the right or left, turn the Adjusting Screw 8 (Fig. 2) in the required direction. (Lower the Melting Pot to reach Screw 8).

Remove the piece of packing from between Nut 2 (Fig. 3) and Lever 3.

Tighten the Casing Screws 24 (Fig 2).

Replace all parts removed (see section "Mold Base and Mold" for directions for replacing Mold parts).

Cleaning Nozzles

On Machines 9125 and following and on all prior Machines on which the Giant Melting Pot has been applied, use Nozzle 92GC4 for Style GC and Style GS Molds, and Nozzle 92GC9 for Style GC1 Molds.

To clean Nozzle 92GC4 drill it from the bottom up to $\frac{3}{16}$″ from the top with a $\frac{9}{32}$″ drill (.281″ diameter); then drill down from the top with a "B" drill which is .238″ diameter. This Nozzle is $2\frac{11}{32}$″ long.

Nozzle 92GC9 is drilled from the bottom up to $\frac{3}{16}$″ from the top with a No. 16 drill (.177″ diameter) and then drilled from the top with a No. 27 drill (.144″ diameter). For the diagonal vent holes in the tip of Nozzle 92GC9 use a No. 60 drill (.040″ diameter) held in the fingers or use a small wire like a paper clip.

Both these Nozzles have $\frac{5}{8}$″–13 thread. Nozzles for GC1 Molds are provided with a Lock Nut 92GC3, so that the Nozzle may be positioned with the two vent holes toward the Mold Blade. For thin set sizes where the Mold Blade would cover the vent holes turn the Nozzle (screw it further in about $\frac{1}{3}$ turn) until the vent holes are free; in this position the vent holes are diagonally back and to the right.

For Machines prior to 9125, which have not been equipped with the Giant Pot and Pump, the Nozzles used are 92GC8 for GC Molds and 92GC10 for GC 1 Molds. These Nozzles have $\frac{5}{8}$″–13 thread. They are $\frac{1}{4}$″ longer than those for the Giant Pump but the same drill sizes and instructions for cleaning and use apply.

PUMP MECHANISM ADJUSTMENTS

Connecting Rod

One Adjustment—Length of Rod 27 (Fig. 5).

Object: That the Crosshead 14 (Fig. 4) shall not hammer on Abutment on Main Stand 15.

PRELIMINARY

The Pump Piston 1 (Fig. 6) should be in place during this adjustment. Back off the two Nuts 11 and 12 (Fig. 4) so

that they cannot come against the CASTING 10 during this adjustment.

PROCEDURE

With the PUMP HANDLE 38 (Fig. 5) thrown in, as shown, and the MACHINE at rest; that is, when the top of the PUMP-OPERATING-CAM LEVER 40 is all the way to the rear and no compression on the SPRING BOX (Fig. 11), make the length of ROD 27 (Fig. 5) such that CROSSHEAD 14 (Fig. 4) will clear its ABUTMENT 15 by $\frac{1}{32}''$. Be sure to test this clearance after both LOCK NUTS 28 and 33 (Fig. 5) on ROD 27 are tightened.

After making this adjustment, and the ROD 27 is locked with its LOCK NUTS 28 and 33 on each end, swing the handle 38 up and down a few times to make sure it enters properly the square hole in the SPRING CLIP 35. If it does not enter this square hole properly, loosen the LOCK NUT 33 and tighten it again after moving the SPRING CLIP 35 in the desired direction to bring its hole in line with the HANDLE.

Piston—Two Adjustments

First: Position of STOP 43 (Fig. 5).
Second: Position of STOP NUT 25 (Fig. 5).
Both of these adjustments must be considered together.

First and Second

Object: That the PISTON may be clamped tightly against its upper STOP PLATE 4 (Fig. 6) at all times except when the NOZZLE is in contact with the MOLD.

PRELIMINARY

With the MACHINE in the position of rest, back off the two NUTS 25 and 26 (Fig. 5). Loosen LOCK NUT 48 and screw down the STOP 43. When this is done, note that the PISTON 1 (Fig. 6) is locked against its up STOP 4 and that the LATCH 16 (Fig. 7) has clearance below it. The PUMP-LATCH HANDLE 38 (Fig. 5) is to be thrown into operating position as shown.

PROCEDURE

Screw up the STOP 43 (Fig. 5) until it just touches the CROSSHEAD 45 and then screw it up about ½ turn further. At this point the PIN 6 (Fig. 6) will stand central in the hole in the PISTON LEVER 7. This is indicated by the fact that

the PIN 6 may be revolved freely with the fingers. Tighten the NUT 48 (Fig. 5) and see that the adjustment holds.

With the fingers screw up the NUT 11 (Fig. 4) just to bearing against the CASTING 10, then tighten LOCK NUT 12 against it.

Latch

One Adjustment—To clear its ABUTMENT PLATE 19 (Fig. 7).

Object: That the LATCH PLATE 18 (Fig. 7) shall clear its ABUTMENT PLATE 19 when the PISTON 1 (Fig. 6) is at the top of its stroke.

PROCEDURE

With the MACHINE in the position of rest, adjust the NUT 14 (Fig. 7) and lock it with LOCK NUT 13 to give $\frac{1}{64}''$ clearance between the LATCH PLATE 18 and its ABUTMENT PLATE 19.

Pump-body Operating Rod

Two Adjustments—Position of PUMP-BODY-OPERATING-ROD LEVER 7 (Fig. 8) and STUD 5.

Object: That the NOZZLE shall be seated before the PISTON starts on its down stroke and be withdrawn early by the action of STUD 5.

PROCEDURE

With the MACHINE at rest, adjust the NUT 6 (Fig. 9) and lock it with its LOCK NUT 5 so that the LEVER 2 will clear the PISTON LEVER 1 by $\frac{1}{16}''$ when the front of the LEVER 2 is swung as far to the left as possible. Hold up the ROD 14 (Fig. 3) (on which are NUTS 1 and 2) with the fingers in order to take up the lost motion when testing this adjustment.

Swing the GAG PLATES 6 (Fig. 7) into position beneath the LATCH 16 and turn the MACHINE with PUMP engaged until the GAG PLATES 6 come within $\frac{1}{32}''$ of the LATCH 16. In this position adjust the STUD 5 (Fig. 8) so that it just touches LEVER 7, then back off STUD 5 one-half turn. Lock STUD 5 in this position with its LOCK NUT 6.

Caution: Be careful not to screw STUD 5 (Fig. 8) down too far for, if this is done, it will prevent the PISTON returning to the top of its stroke, the LATCH PLATE 18 (Fig. 7) will not engage the ABUTMENT PLATE 19, and a "squirt" or other trouble will result. A wrong adjustment of this STUD 5 (Fig. 8) may be easily mistaken for a sticky PISTON. If the PISTON

seems to stick, so that it does not rise to the top of its stroke, test first the adjustment of this Stud 5.

In this position with the Lever 3 (Fig. 3) free, examine the lower part of the Operating Rod 14. Make sure the Nozzle has been centered correctly. The Nozzle should now be held firmly against the Nozzle Seat by the Pump-body Lifting Spring at the side of the Melting Pot and there should be no interference with the Pump-body Lifting Lever 15 to prevent its seating the Nozzle properly. Take the Rod 14 in the fingers and raise it so that the Washer 5 comes against the Lever 15 and see that there is $\frac{1}{16}''$ clearance between the Washer 9 and the Swing Frame Casting 10. If it is necessary, adjust the position of either Washer 5 or 9 to obtain this clearance. Then test again the adjustment of the Nut 2 at the top of the Rod 14.

Piston Spring

One Adjustment—Position of Nut at upper end of Piston-spring Rod 1 (Fig. 5).

Object: To give proper Piston pressure.

PROCEDURE

Be sure the Nut is on right side up. The knurled side should be on top. Screw down or up the Nut on the upper end of the Piston Spring Rod 1 (Fig. 5) to give just sufficient pressure to get solid product. Do not use more pressure than is necessary. The smaller bodies require less pressure.

Cleaning the Pump Body

Before attempting to clean a Pump Body be sure you have in your plant a duplicate of the Plugs to be removed and of the Intake Valve. These are 3, 7, 8, 11, 12, and 13 (Fig. 10).

The Pump Body must be hot when taking out the Plugs. With the Piston and Nozzle removed let the Pump Body stand in the molten metal in the Melting Pot until thoroughly hot. Carefully empty all molten metal out of the Pump Body and take the Pump Body to a vise where the Plugs should be loosened while still hot.

Grip the bottom Plug 8 in the vise with the Pump Body standing erect as in casting position. Tap the arm of the Pump Body in a contra-clockwise direction to loosen the bottom Plug 8, but do not unscrew it. Loosen Nut 9 and take out the Regulating Screw 10. Loosen Plugs 3, 7, 11, and 13. The object of loosening all the Plugs without stopping to remove them is to be sure that this work is done while the parts are still hot because if they become cold the Plugs will stick so that it is necessary to return the Pump Body to the Melting Pot to reheat it. All of the Plugs may now be removed and the Valve 12 also.

By this time the Pump Body will be cooled sufficiently so that it may be drilled without damage to the Pump Arm drill. The Pump Arm is to be drilled from the Nozzle end where Plug 3 is taken out. Be very careful not to run the drill down far enough to injure the threads in the bottom of the Pump where Plug 8 screws in. A $\frac{5}{16}''$ Pump Arm drill is used. The connecting hole from this diagonal hole to the Nozzle is large and seldom clogs, but should be tested with the $\frac{5}{16}''$ drill to be sure it is clear.

Also run a $\frac{3}{16}''$ drill through the hole from which Plug 7 (Fig. 10) was removed. This clears the passage from the Valve chamber into the Pump Body.

When assembling the Pump Body all parts must be hot. These can be heated in the type metal, but the Melting Pot should be cleaned and skimmed before doing so. All Plugs should have a little graphite applied to the threads before they are screwed into the Pump Body. To insert Plug 8, hold the Pump Body in the vise and screw the Plug in with the pipe pliers. This Plug should be screwed in only as tightly as can readily be done with the pipe pliers, but be sure that it is up to good solid bearing and not held out of position by dirt or dross in the threads. If there is dirt or dross in the threads of this Plug so that it cannot be screwed in with the pipe pliers, this dirt and dross must be scraped out; an old hacksaw blade is useful for this purpose when used by hand and not in a hacksaw frame. All other Plugs should be brought up to an easy bearing, using the proper wrench which fits each Plug. Do not screw them in hard as that would make it difficult to remove them the next time.

It is well to have the Pump Body in a horizontal position when inserting Plugs 11 and 13 with Valve 12 between them as it is easier to handle Valve 12 in this position. Make sure that Valve 12 seats properly against Plug 11 and if it does not, grind it in with a little Valve grinding compound. When inserting Regulating Screw 10, leave $\frac{1}{8}''$ clearance between the bottom of this Screw and the head of Valve 12. The adjustment of this Screw is made after the Pump Body is in the Machine and the metal hot.

The Nozzle and Piston are put in after the Pump Body is in position in the Melting Pot and both should be heated

by immersion in the molten metal before being inserted in the PUMP BODY. The drilling of the NOZZLE is covered under the section "CLEANING NOZZLES."

TAKING APART SPRING BOX X74GC (Fig. 11)

Caution: Injury to the operator may result unless these instructions are followed in detail.

Caution: If ROD 18 is broken inside the SPRING BOX do not attempt to take apart the SPRING BOX, but return it complete to our factory. If the SPRING BOX must be taken apart for any other reason proceed as follows:

Remove the SPRING BOX from the MACHINE.

Clamp the HEAD 21 in a vise at the bench.

Loosen NUT 8 and remove SOCKET 7.

Remove NUTS 8, 9 and 10.

Put three WASHERS $\frac{1}{16}''$ thick and outside diameter less than the front end of the ABUTMENT 14 over the ROD 18 and screw down the NUT 10 on the ROD 18 until it touches these WASHERS.

Put NUTS 8 and 9 on the end of the ROD, lock them together and hold them with a wrench so that the ROD 18 does not turn. Then run the NUT 10 to the bottom of the thread on ROD 18. This will draw the ROD up until the end extends about $2\frac{3}{16}''$ above the ABUTMENT 14.

Remove the NUTS 8 and 9. Put a WASHER $\frac{1}{8}''$ thick and $\frac{1}{4}''$ larger outside diameter then the end of the ABUTMENT 14 on the ROD 18, put on NUT 9 and draw it down until the WASHER is jammed on the other NUT 10 and against the end of the CAP 13.

Now remove the four NUTS 12 and loosen carefully the NUT 9 until it comes near to the end of the ROD 18, when the CAP 13 must be held down while a helper removes the NUT 9. As this SPRING 15 expands it will be found to be nearly 5″ longer than the SPRING BOX TUBE. Remove the SPRING 16 from the TUBE with the SPRING 15, the ROD 18 and ABUTMENTS 14 and 20 which are held together by the SPRING ROD 18 and NUT 10.

Now take a piece of ROD $\frac{1}{2}''$ in diameter and put it in the vise allowing it to stand $1\frac{1}{8}''$ above the jaws. Place the opening in the ABUTMENT 20 over this ROD and then remove the NUT 10 with the WASHERS from the ROD, holding down on the ABUTMENT 14 just before the NUT is finally removed

so that it does not spring away. Now remove the ABUTMENT 14 and SPRING 15 from the ROD 18. Lift the ABUTMENT 20 and ROD 18 from the piece of $\frac{1}{2}''$ ROD held in the vise and remove the ROD 18 from the ABUTMENT 20.

Insert the new ROD 18 in the ABUTMENT 20 and assemble the SPRING BOX in the reverse of the order given above for taking apart.

There are two SPRINGS in this SPRING BOX. Both of these SPRINGS act when ejecting material from the MOLD, but only the inner SPRING acts when drawing the MOLD BLADE to the left for sizing.

Spring Box Adjustment

Loosen the LOCK NUT 9 (Fig. 11) and bring the ADJUSTING NUT 10 just to a bearing on the SPRING ABUTMENT 14. Tighten the LOCK NUT 9 and test to be sure the adjustment holds. There must be no looseness nor must there be any compression. This adjustment must, of course, be made when the MACHINE is in position of rest with no compression either on the sizing or ejecting SPRING.

Spring-box Rod Adjustment

Have the MACHINE set for casting a nine-pica stroke with the No. 3 PACKING PIECE to the left of the MOLD BASE as for casting non-fusion. Loosen the LOCK NUT 8 (Fig. 11) and turn the ROD 18 by means of its two NUTS 9 and 10 in or out of the SOCKET 7 to equalize the compression on each end of the stroke. Tighten the LOCK NUT 8 and test to see that the adjustment holds. At shorter casting strokes this compression will not be the same on sizing and ejection, but must be equal at the maximum stroke of nine picas.

CALCULATING-SCALE CYLINDER

Operating Rod Adjustment

Have the LOCKING LEVER 2 (Fig. 12) unlocked (turned down as shown) so that the PAWLS may feed the RATCHET. Have the MACHINE turned so that the OPERATING ROD 30 is at the upper end of its stroke with the shoulder in the ROD against the inner corner of the MAIN STAND 15 under pressure from the SPRING 11 (Fig. 13). Loosen the LOCK NUT 29 (Fig. 12), take out the PIN 27 and adjust the EYE 28 turning it on or off the ROD 30, so that, when the MACHINE is turned over, the RATCHET 21 on the CYLINDER SHAFT is moved far

enough by its FEED PAWL 20 that the DETENT PAWL will drop safely into the next tooth. Tighten the LOCK NUT 29.

Turn the MACHINE until the ROD 13 (Fig. 13) is at the lower end of its stroke and adjust the NUTS 12 on the lower end of the ROD 13 so that the FEED PAWL 20 (Fig. 12) will drop into the same tooth on the RATCHET 21 as the DETENT PAWL, with a little extra movement for safety. These two settings can be told by watching the tails of the PAWLS, as the ends of the PAWLS which engage the RATCHET are covered.

Automatic Pawl Release

Object: To release the RATCHET PAWLS 20 (Fig. 12) on a non-fusion stroke.

Rotate the CALCULATING CYLINDER 18 (Fig. 14) toward the rear to its No. 1 position and lock it with LOCKING PIN 9 (Fig. 15). This will swing the GAG BLOCK 30 down out of the way of the MOLD BLADE. Turn the MACHINE until the MOLD BLADE is moved and stops against the stop on the MOLD.

Caution: For this adjustment, the MOLD BLADE must not be stopped by the GAG BLOCK 30.

Loosen the LOCK NUT 7 (Fig. 12) and adjust the SCREW 6 at the rear end of the RATCHET-PAWL TRIP LEVER 5 so that the PAWLS will be lifted out from the RATCHET 21 and permit the RATCHET 21 and its SHAFT to rotate in reverse direction to its No. 1 position under its own spring tension.

SINGLE CAST, NON-FUSION

Rotate the CALCULATING CYLINDER 18 (Fig. 14) toward the rear (away from you) as far as it will go. As it reaches the No. 1 position it will swing the GAG BLOCK 30 (Fig. 15) down out of the way against SPRING 17 pressure. This extra spring pressure at this point is a check to be sure the right position is reached. Lock the CYLINDER in this position with its LOCK PIN 9 and keep the RATCHET PAWLS 20 (Fig. 12) locked out with their LOCKING LEVER 2 turned forward (opposite to the position shown in Fig. 12).

Caution: It is possible to revolve the CYLINDER more than a complete revolution toward the front, so that the No. 1 position might be reached in the wrong direction, but it then would not hold out the GAG BLOCK 30 (Fig. 15) nor give non-fusion in that position. Always be sure to rotate the cylinder away from you until the GAG BLOCK 30 moves down.

MICROMETER-WEDGE SCREW

Adjust the NUTS 2 and 3 (Fig. 17) so that SCREW 13 is just free to turn on ROD 1, but without any up and down play. This may best be done by screwing down NUT 3 until SCREW 13 is locked fast; then back off NUT 3 a part of a turn so that SCREW 13 is just free. Lock the NUT 3 with its LOCK NUT 2 and test SCREW 13 again to see that this has not changed the adjustment.

If there is to much play between these parts it will tend to cause variation in the length of casts as well as occasioning extra wear.

USE OF PACKING PIECES

There are five PACKING PIECES for use at the left of the MOLD BASE to shift the location of the MOLD cavity in relation to the NOZZLE opening. These PACKING PIECES are numbered 0, ½, 1, 2½, and 3, and are used according to the product being cast.

PACKING PIECES USED FOR TYPE AND NON-FUSION SPACING

PACKING PIECE	SET SIZE IN POINTS	MINIMUM CASTING CAVITY
0	6 to 24	0
½	25 to 33	6 Points
1	34 to 45	12 Points
2½	46 to 60	30 Points
3	61 to 108	36 Points

The No. 0 PACKING PIECE assembly 1 to 4 (Fig. 16) when placed at the left of the MOLD BASE 33, places the MOLD in its normal position—that is, with the MOLD in this position, the MOLD BLADE may be moved to the right until it comes nearly in contact with the CROSS BLOCK 16, leaving .040″ minimum casting cavity (.027″ for 14 and 18 pt. GC1 MOLDS)

between the CROSS BLOCK 16 and the MOLD BLADE 7. With the BLADE in this position, the zero reference mark on the VERTICAL PICA GAGE 12 (Fig. 17) (which moves up and down with the GRADUATED WHEEL) is opposite the zero on the SCALE 11 beside it. This position is the extreme right position of the MOLD BLADE with the zero mark on the GRADUATED WHEEL 5 opposite its reference mark.

The No. 0 PACKING PIECE 1 (Fig. 16) has a WEDGE 3 with STEPS on it and an ABUTMENT 4 which is used when casting the smaller set-sizes to adjust the position of the STOP PLATE 13, the object being to always keep the MOLD CLOSURE opening within the body of the type; that is, the right end of STOP PLATE 13 should be just inside the MOLD opening as this prevents the cast of metal from striking the under side of the MOLD BLADE 7. The WEDGE has six positions with 3 points difference between the steps, allowing a total possible change of 15 points. As the set-size is made smaller, the WEDGE must be pushed further in. Examine the foot of the type cast to see that the STOP PLATE 13 is correctly located for the set-size being cast.

If the setting on the VERTICAL PICA GAGE 12 (Fig. 17) is left the same; that is, with the zero on the VERTICAL PICA GAGE 12 opposite the zero on the SCALE 11 beside it, and the No. ½ PACKING PIECE is put in place of the No. 0 PACKING PIECE, the MOLD will be moved 6 points to the right, since the No. ½ PACKING PIECE is 6 points thinner than the No. 0 PACKING PIECE. This, of course, moves the CROSS BLOCK 6 points to the right, and since the BLADE remains stationary, a casting cavity of 6 points is formed. The BLADE cannot be moved any further to the right, therefore, this 6-points casting cavity is the smallest cavity that can be formed using the No. ½ PACKING PIECE.

The No. 1 PACKING PIECE is 12 points thinner than the No. 0 PACKING PIECE, therefore with this PACKING PIECE in place of the No. 0 and the zero opposite the zero on the VERTICAL PICA GAGE 12, the MOLD is moved 12 points to the right and leaves a minimum casting cavity of 12 points.

Similarly the other two PACKING PIECES No. 2½, and No. 3, are respectively 30 and 36 points thinner than the No. 0 PACKING PIECE and, therefore, the smallest casting cavities for these PACKING PIECES are respectively 30 and 36 points. Thus the numbering of the PACKING PIECES may be considered to indicate picas and to represent the minimum set-size body cast with it.

The most commonly used PACKING PIECES are No. 0, No. 1, No. 3. In view of this fact, reference marks have been placed at 1 and 3, as well as at zero, on the VERTICAL PICA GAGE 12 so that with anyone of these PACKING PIECES in place at the left of the MOLD BASE, the corresponding reference mark may be used in place of the zero reference mark and the set-size in picas and points, as read from the "Table of Type Sizes," may be set directly opposite this reference mark on the VERTICAL PICA GAGE.

The less frequently used PACKING PIECES do not have reference marks on the VERTICAL PICA GAGE 12 simply to avoid confusion which would be caused by putting any more numbers in the small amount of space available. When these PACKING PIECES are used, however, it is very easy to determine the setting if the operator has read the previous instructions carefully and understands just what happens when PACKING PIECES are changed. For example, if the ½ PACKING PIECE is in place, the smallest casting cavity possible is 6 points, and that occurs when the zero on the VERTICAL PICA GAGE 12 is opposite the zero on the SCALE 11 beside it. Therefore, with this PACKING PIECE in place, 6 points of the set-size of any type cast is taken care of by the PACKING PIECE itself. To cast type, then, read the size in points from the matrix; refer to the "Table of Type Sizes" and change this size to picas and points; subtract the 6 points (½ pica), which is taken care of by the PACKING PIECE No. ½, from this size in picas taken from the "Table of Type Sizes" and set the zero reference mark on the VERTICAL PICA GAGE 12 opposite this remainder (that is, the difference between the size taken from the "Table of Type Sizes" and the ½ pica due to the presence of the PACKING PIECE No. ½).

THE MICROMETER-WEDGE WHEEL 5 (Fig. 17), which is graduated in picas and fractions of a pica, must be checked to see that it reads correctly. This adjustment corresponds to finding the quad size on COMPOSING MACHINES. Remember WHEEL 5 is a gage, not a handle—KNOB 4 is the handle. With the No. 3 PACKING PIECE in the MACHINE set the No. 3 on GAGE 12 opposite the No. 6 on the SCALE 11 and have the zero mark on the WHEEL 5 opposite the line on the top of the VERTICAL PICA GAGE 12. Cast a few non-fusion pieces. These should be exactly 6 picas long. Measure these with a micrometer and if they do not measure correctly, move the WHEEL 5 up or down until these pieces are exactly the correct size. When the correct size has been found, screw in to an easy bearing the LOCKING SCREW 7 (Fig. 17) on the side of

the MICROMETER WEDGE STAND 8 to make sure the WEDGE 10 will not change position. Loosen SCREW 19 which fastens WHEEL 5 to the MICROMETER-WEDGE SCREW 13 and turn the WHEEL 5 (holding KNOB 4 to keep SCREW 13 from turning) until its zero is opposite the reference mark at 6 picas. Tighten SCREW 19 lightly, but be very careful not to make it too tight or it will crack the WHEEL 5. The WHEEL 5 is now set correctly and will stay that way. This should be checked, however, from time to time when the MOLD or PACKING PIECE is changed, to make sure nothing has loosened the SCREW 19 and changed the setting.

Do not use WHEEL 5 for turning SCREW 13 when changing settings, but turn it by means of KNOB 4.

FUSION

For fusion material always use the No. 3 Packing Piece at the left of the MOLD BASE 33 (Fig. 16) and read the pica length of each cast on the SCALE 11 (Fig. 17), opposite the No. 1 graduation on the VERTICAL PICA GAGE 12. (Note particularly that the No. 1 graduation is used in setting for fusion material.)

All of the casts on a strip of fusion material are the same length (setways) except the first cast which is always two picas more than the others. For example, if approximately a six-pica cast is used on all except the first cast, then the first cast will be approximately eight picas. The exact length of cast is determined by the length of strip desired and the number of casts used to make it. This casting length is obtained by setting the GRADUATED WHEEL 5 (Fig. 17) of the MICROMETER WEDGE SCREW 13 (turning it by means of KNOB 4) according to figures read from the CYLINDRICAL SCALE 18 (Fig. 14) after determining the number of casts to be made for the strip desired.

Example: Wanted: A strip of material $93\frac{1}{2}$ picas long. Since the first cast is two picas longer than each of the other casts, subtract 2 from the $93\frac{1}{2}$ picas ($93\frac{1}{2}-2=91\frac{1}{2}$). Since we use approximately a 6-pica stroke, divide this remainder of $91\frac{1}{2}$ by 6 to get the number of casts, which will be 15 with $1\frac{1}{2}$ picas left over ($91\frac{1}{2}\div 6=15$ with $1\frac{1}{2}$ remainder.) This remainder must be changed from picas to points per cast; that is, we must find how many points must be added to each cast to add $1\frac{1}{2}$ picas to the length of strip in 15

casts. This is all automatically calculated by using the CYLINDRICAL SCALE 18. Revolve the CYLINDRICAL SCALE 18 (Fig. 14) to 15 and lock it with the LOCK PIN 9 (Fig. 15). Look along the STATIONARY HORIZONTAL SCALE 23 (Fig. 14) for $1\frac{1}{2}$. Read the number on the CYLINDRICAL SCALE 18 directly over the figure $1\frac{1}{2}$ on the STATIONARY SCALE 23. In this case it is $1\frac{3}{16}$. That means that $1\frac{3}{16}$ points must be added per cast to make up the $1\frac{1}{2}$ picas on the full length strip.

Loosen the CLAMPING KNOB 6 (Fig. 17). Turn the GRADUATED WHEEL 5 until the figure 1 on the VERTICAL PICA GAGE 12 is opposite the figure 6 on the SCALE 11 beside it (remember on fusion material the figure 1 is used instead of zero on the VERTICAL PICA SCALE 12) and then by means of KNOB 4 turn the WHEEL 5 further to increase the stroke, until $1\frac{3}{16}$ on the graduated rim of the WHEEL 5 comes to its zero reference mark and tighten the CLAMPING KNOB 6 lightly.

When the first strip is cast, measure it with a standard pica gage to check the length. If the strip should be a little long or a little short, the difference can be made up by use of the CYLINDRICAL SCALE 18 (Fig. 14) and the GRADUATED WHEEL 5 (Fig. 17). By means of the CYLINDRICAL SCALE 18 (Fig. 14) the amount under or over that the length of strip cast varies from the desired length may be changed from picas to points per cast (as we did in the case of the $1\frac{1}{2}$ picas above). The number of points per cast determined in this way can then be added or subtracted by means of screwing up or down, respectively, on the GRADUATED WHEEL 5, (Fig. 17) as the case may be.

All the calculating for this setting is done by the CYLINDRICAL SCALE 18 (Fig. 14) with the exception of subtracting 2 from the total length of the strip and dividing the remainder by the approximate length of cast to be used. In this illustration we used 6 as the approximate length of cast, but $5\frac{1}{2}$ or 5 or even 4 could have been used if a shorter stroke was desired.

See "TABLE OF MACHINE SETTINGS FOR FUSION MATERIAL CASTING" on back of "TABLE OF TYPE SIZES" Giant Caster.

STOP PLATE

The several PACKING PIECES through their effect in varying the location of the casting cavity of the MOLD cause a

change in the position of the STOP PLATE 13 (Fig. 16) in relation to the CROSS BLOCK 16 and unless care is exercised to use the proper PACKING PIECE a condition may be brought about whereby the end of the MOLD BLADE 7 in casting position will overlap the end of the STOP PLATE 13. Be sure the right end of the STOP PLATE 13 is never to the left of the right end of the MOLD BLADE 7 when the MOLD BLADE is in casting position, for if it should be, the incoming metal from the NOZZLE would hit the lower corner of the MOLD BLADE and not only give poor type, but also might raise the BLADE and force metal beneath it, thereby causing trouble. (For proper PACKING PIECES, see table on page 44.)

CLOSURE

The rear GUIDE PLATE 28 (Fig. 16) is marked near the right end with three lines symboled O, F, and L. The right end of the top tongue on the CLOSURE 29 is the index or reference point for setting the CLOSURE to these lines.

O, locates the CLOSURE 29 flush with the CROSS BLOCK 16 when No. 0 PACKING PIECE is used at the left of the MOLD BASE 33. When other PACKING PIECES are used, the O setting of the CLOSURE brings the CLOSURE to the left of the CROSS BLOCK 16 by the amount of picas marked on the PACKING PIECE.

F, locates the left end of the CLOSURE 29 two picas to the left of the CROSS BLOCK when No. 3 PACKING PIECE is used at the left of the MOLD BASE.

L, locates the CLOSURE 29 with $\frac{1}{32}''$ bearing on the NOZZLE SEAT regardless of the PACKING PIECE used. *This is the limit*—do not open the CLOSURE further than this mark.

The proper position of the left end of the CLOSURE 29 (Fig. 16) relative to the left face of the CROSS BLOCK 16 when the CLOSURE 29 is all the way open at the right end of the stroke depends on the set-size of the material being cast and whether fusion or non-fusion. For non-fusion material, the left end of the CLOSURE 29 should never come to the right of the left face of the CROSS BLOCK 16, that is, never open the CLOSURE 29 beyond the mark O. For very small set-sizes the left end of the CLOSURE may come almost flush with the left face of the CROSS BLOCK (open to mark O), while for larger set-sizes the left end of the CLOSURE will need to stop further to the left, away from the left face of the CROSS BLOCK to get the best results. This may be determined by trial.

For fusion material the left end of the CLOSURE 29 when all the way open must never be less than two picas (mark F) to the left of the left face of the CROSS BLOCK 16. This is because the left end of the first cast, when pushed to the right and clamped by the CROSS BLOCK 16 is two picas to the left of the left face of the CROSS BLOCK 16, and the CLOSURE OPENING must not extend underneath the left end of this cast. Each subsequent cast comes to the same position as the first with the exception of the last cast, which is pushed completely past the CROSS BLOCK 16.

Caution: Bear in mind that changing the PACKING PIECE at the left of the MOLD BASE changes the relation of the CLOSURE 29 to the CROSS BLOCK 16. Always check the setting of the CLOSURE relative to the CROSS BLOCK when changing PACKING PIECES or when changing MOLDS.

CLOSURE OPENING

First check to be sure the CLOSURE at its extreme right setting is not locked solid, as this would put a strain on the parts and wear the CLOSURE CAM. Loosen NUT 12 (Fig. 19) and back off ROD 13 about half an inch or more. Adjust NUT 7 (Fig. 18) and lock it with its LOCK NUT 9 so that with the CLOSURE at the right end of its stroke the edge of the reference shoulder on the CLOSURE comes opposite line L on the rear GUIDE PLATE. This is the right hand limit for stroke on the CLOSURE. With the parts in this position test the BELL CRANK 5 (Fig. 19) to be sure its right arm is not binding against the casting to the front of it. Screw the NUT 12 on the ROD 13 as far as it will go, until it comes against the shoulder on the ROD. Now screw ROD 13 in the casting until it comes up solid against the NUT, back it off one turn and lock it with its LOCK NUT 12.

Having once made the above check it need not be made again unless the setting of ROD 13 is broken as has to be done when cleaning a MOLD CLOSURE (Page 35) without taking the MOLD from the MACHINE. In this case the ROD 13 must be adjusted as described, with the CLOSURE at its L setting.

The position of the CLOSURE opening must be adjusted each time to suit the product to be cast. This is done by means of ADJUSTING NUT 7 (Fig. 18). Screw this NUT 7 in or out on ROD 5 until the CLOSURE opens to the desired posi-

tion. Lock the Nut 7 with its Lock Nut 9. The positions O, F, and L are given as relative settings, but intermediate settings may be used when they bring better results. In general, when casting type or non-fusion material, the wider the set-size being cast the further the Closure should be opened, but never so far that the left end of the Closure will come under the Cross Block—for the stream of metal must never be allowed to strike the under side of the Cross Block. For example, when the No. 0 Packing Piece is used the Closure must always be set at the O position and never opened any wider, as this is the limit when that Packing Piece is used; but when smaller Packing Pieces are used, so that the Mold is positioned further to the right in relation to the Closure, then the Closure may be opened wider in proportion.

CLOSURE-CAM-LEVER BUFFER

Before making this adjustment, make sure that the Buffer 34 (Fig. 18) and the Sleeve 35 in back of it are approximately in the center of the threaded portion of Rod 37 in the rear. This is just an approximate setting and may require changing a little to get the best adjustment on the Rod 37.

Loosen the Lock Nut 10 (Fig. 18) and turn the Rod 37 into or out from its Eye 11 so that when Leather Buffer 34 is against the face of the Galley Casting 39, the Shoe 50 on the lower end of the Cam Lever 46 is about $\frac{1}{8}$" away from the low part of the Cam 21. Tighten the Lock Nut 10 and test to see that the adjustment holds. Be sure the Lock Nuts 10 and 36 are tight and that they stay tight. They should be checked from time to time as there is a tendency for them to work loose.

When the Machine is to run idle, pull the Closure-cam Lever 46 (Fig. 18) forward by hand and put a piece of material (for example a 36-point quad) between the Leather Buffer 34 and the face of the Casting 39 to hold the upper end of Lever 46 forward. This prevents the Closure 29 (Fig. 16) operating while running idle and saves wear on the ends of the Closure 29 and Stop Plate 13. Do not forget to take this packing out before starting to cast or the jet will not be cut off properly.

BRIDGE

Length of Operating Rod

Preliminary to this adjustment it is necessary to make sure that the Pinion 27 (Fig. 20) is in the correct tooth in the Rack 30. To do this, set the two Nuts 31 and 33 on the rear Bridge Support 36 so that the center of the horizontal Pin 32 through which the rear Bridge Support 36 goes will be $8\frac{1}{4}$" above the Base. This will make the Bridge 14 level.

When the Bridge 14 (Fig. 20) is in this position, the Rack 30 should be in a tooth in the Pinion such that the distance from the center of the Pin 26 to the Casting enclosing the Pinion is from $\frac{5}{8}$" to $\frac{3}{4}$" when the Rack 30 is pushed all the way to the rear with the fingers, causing the Matrix to seat firmly on the Mold. If the Rack 30 is not in this tooth, remove the Guard 29, take out the Rack and turn the Pinion 27 with the finger so that when the Rack and Pinion are meshed there will be this $\frac{5}{8}$" to $\frac{3}{4}$" between the Casting and center of Pin 26 when the Rack 30 is pushed all the way to the rear with the fingers, causing the Matrix to seat firmly on the Mold.

If the Machine is equipped with a Guard 29 (Fig. 20) over the rear end of the Rack 30 this Guard 29 must be unscrewed and taken off before the finger can be inserted through the hole in the rear to turn the Pinion 27 to the desired tooth.

Turn the Machine until the Matrix seats on the Mold. Adjust the length of Rod 11 (Fig. 20) by screwing it in or out of the Eye 1 until there is approximately $\frac{1}{32}$" to $\frac{1}{16}$" compression on the Matrix. The amount of compression can be estimated by the distance the rear face of the Abutment 6 at the front end of the Spring moves out from under the Shield 10. It is about flush with the Shield 10 at the forward end of the stroke and should project about $\frac{1}{16}$" at the rear end of this stroke.

When the Rack 30 (Fig. 20) has been once set in the correct tooth in the Pinion 27, and the Rod 11 adjusted as described above, these settings should never be changed. Any further adjustment of the Matrix Seating may be made by adjusting the Nuts 31 and 33 on the rear Bridge Support 36 in such a position that $\frac{1}{32}$" compression will be shown on the front end of Rod 11 when the Matrix has seated on the Mold.

To avoid changing the mesh of the PINION 27 and RACK 30, care should be taken to prevent the RACK 30 from slipping out when the BRIDGE 14 is swung over to the front, as when changing a MOLD. This can be done by resting the thumb on the RACK 30 when moving the BRIDGE 14.

CLAMPING LEVER

The object of this adjustment is to release the product while being pushed from the MOLD and to clamp the product for the next cast.

Loosen the LOCK NUT 41 (Fig. 18) and remove the pin from the EYE 42. Turn the EYE 42 on or off the ROD 40 until the ROD 40 is of such a length that when the PIN is replaced in the EYE and the MACHINE is turned over, the front end of the TYPE-CLAMP LEVER 1 will be raised about $\frac{1}{8}''$ on the upstroke of the ROD 40, and on the downstroke of the ROD 40, there shall be about $\frac{1}{32}''$ clearance between the HEAD 30 and the LEVER 1. Tighten the LOCK NUT 41 and test to see that the adjustment holds.

CLUTCH OPERATING ROD

The object of this adjustment is to insure that the CLUTCH will engage properly with no binding of the ROD.

Remove the PIN 3 (Fig. 21) and loosen the LOCK NUTS 1 and 10. By turning ROD 9 in left-hand rotation to lengthen it or in right-hand rotation to shorten it, make its length such that when the CLUTCH is all the way in, the hole in the EYE 2 will just line up with the hole in LEVER 4. Slip in the PIN 3 and tighten the LOCK NUTS 1 and 10 and see that the adjustment holds.

Caution: Be sure that the CLUTCH is all the way in for this adjustment.

MOLD BASE AND MOLD

Mold Base or Nozzle Seat Assembly on the Machine

It is not often necessary to take the MOLD BASE apart for cleaning and readjustment. When this is found to be necessary proceed as follows:

TAKING APART

Take off the two ABUTMENT PLATES 32 (Fig. 16) and one CLAMP 30 in the back. Take out all screws from the top of the CLOSURE GUIDE PLATES 28 and 34. Slide GUIDE PLATE 28 off to the rear. Remove CLOSURE 29 and remove STOP PLATE 13, by sliding them off to the rear. Take off GUIDE PLATE 34. Take out the NOZZLE SEAT 35. Clean all parts carefully, being sure they are free from particles of metal as well as from dirt.

ASSEMBLY

Replace the NOZZLE SEAT 35 (Fig. 16) and test it by seeing that the PLATE 34 will slide over it without interference. If the NOZZLE SEAT interferes with the PLATE 34 it shows either that there is dirt under the NOZZLE SEAT, or that possibly the SCREWS in the NOZZLE-SEAT SHIELD underneath may be drawn up too tightly, thus holding the NOZZLE SEAT up out of place.

Put on the front GUIDE PLATE 34 and tighten its SCREWS while holding the GUIDE PLATE 34 tightly against the front edge of the BASE PLATE 33. Be sure PLATE 34 does not overhang the left end of the BASE PLATE 33. Put in the STOP PLATE 13. Put on the rear GUIDE PLATE 28 and bring it up against the STOP PLATE 13, holding it forward with the fingers while bringing its screws just to bearing. Be sure this PLATE 28 does not overhang the BASE 33 at the left end.

Bring the rear CLAMP 30 up to bearing against the GUIDE PLATE 28. Test to see that the STOP PLATE 13 can just be moved, but is not loose. Use the bronze cleaning rod for moving the STOP PLATE 13, as it is not possible to get hold of it with the fingers. It must be without shake, but not clamped too hard. Test with the CROSS BLOCK 16 to see that the rear GUIDE PLATE 28 is not raised above the front GUIDE PLATE 34.

Slide the STOP PLATE 13 out the left end and, without reversing it, slide its left end into the right end of the opening between the GUIDE PLATES 28 and 34 to see whether this opening is the same size at both ends. This test must be made with the STOP PLATE 13 and not the CLOSURE 29 since the CLOSURE 29 is of slightly different size from the STOP PLATE 13.

Put in the CLOSURE 29 and see that it is a free fit with not over .002″ shake. Put on the two ABUTMENT PLATES 32 at the rear. These must be removed again when putting a MOLD

on the BASE or when taking it off when the BASE is on the MACHINE, but it is best to have them in place at the present time.

Molds to be Reassembled

When a new or repaired MOLD is received from the factory it must be removed from its wood shipping block, taken apart, and reassembled on a regular MOLD BASE before being put in place on the MACHINE. A MOLD should never be used as it comes from the factory until it has thus been readjusted because shipment on this wood shipping block permits the parts to get out of adjustment.

Assembly of Mold at the Bench

Put the rear BOLSTER 25 (Fig. 16) on the MOLD BASE 33 and push it back against the two ABUTMENT PLATES 32 on the BASE 33 at the rear. Put two BOLTS down through BOLSTER 25 from the top into either set of holes in the BASE, and bring them down to bearing with the fingers. Make sure the BOLSTER 25 is up tight against the two ABUTMENT PLATES 32 on the BASE 33 and tighten the BOLTS.

Clean the SQUARING PLATE 5 (Fig. 16) and the left end of the rear BOLSTER 25 and bolt the SQUARING PLATE 5 in position against the left end of the rear BOLSTER 52. Carefully clean the rear TYPE BLOCK 26 all over and put it in position against the rear BOLSTER 25, with the left end of the TYPE BLOCK 26 firmly against the SQUARING PLATE 5. Select the desired BLADE 7, that is, high or low and correct point size. Clean it and put it, assembled with its CORE, in place against the rear TYPE BLOCK 26.

Clean and put in place the front TYPE BLOCK 14 (Fig. 16) then the front BOLSTER 15. Put in the BOLTS from the SQUARING PLATE 5 to the front BOLSTER and bring them just up to bearing.

Caution: Any dirt between the SQUARING PLATE 5 (Fig.16) and the left end of the front TYPE BLOCK 14 will cause damage to the CROSS BLOCK 16 because the left rear corner of the CROSS BLOCK will strike the right end of the front TYPE BLOCK 14 after the MOLD is completely assembled.

Caution: Dirt or particles of metal between either the front BOLSTER 15 or rear BOLSTER 25 and the SQUARING PLATE 5 will affect the alignment or squareness of the type characters on their body.

Put two BOLTS down from the top through the front BOLSTER 15 (Fig. 16) and bring them to bearing with the fingers.

Have the right end of the BLADE flush with the right end of the CORES, when the CORES are pushed to the right. Put one thickness of a good grade tissue paper on top of the MOLD BLADE 7. This will be approximately .0015″. If no suitable paper is available put a drop of rule mold oil on top of the BLADE where each end of the POINT BLOCK 6 will come. The paper, however, is preferable as it will insure exact clearance.

If a low BLADE has been selected, put the low CROSS BLOCK,* which is the same height as the low BLADE, in place while fitting the CAP. Put the MOLD-BLADE CAP in place on top of the MOLD BLADE and low CROSS BLOCK, with a piece of tissue paper not over .0015″ thick between the BLADE and CAP to provide clearance.

Caution: This CAP is a ground fit and care should be taken not to damage its corners or edges, otherwise metal will get in between the CAP and the CROSS BLOCK and trouble will follow.

When the CAP is used, the tissue paper is put on top of the BLADE 7 (Fig. 16) NOT between the CAP and the POINT BLOCK 6.

The same POINT BLOCK 6 is used with either high or low BLADE. Have the POINT BLOCK 6 clean and slide it down in place between the TYPE BLOCKS 14 and 26.

Put in three horizontal through BOLTS from the rear, with DISTANCE SEPARATOR 27 (Fig. 16) and TYPE CLAMP 31 on the right hand BOLT between the BOLSTERS, and on the front of this BOLT in front of the BOLSTER 15 the piece of tubing furnished to take the place of the TYPE-CLAMP-LEVER STAND 19 which will be applied later. Put the WASHERS and NUTS on these three BOLTS and bring the NUTS up to bearing.

Tighten the BOLTS in the SQUARING PLATE 5 (Fig. 16). Tap lightly down and to the left with a small pig of type metal against the POINT BLOCK 6 and TYPE BLOCKS 14 and 26 to be sure they are down on the BASE 33 and squarely against the SQUARING PLATE 5 at the left. These must be tapped lightly and worked over to the left gradually. Go over them in turn and do not drive hard enough to jar one out of place when tapping the next. Tighten the three horizontal through BOLTS from rear to front and then tighten the top BOLTS in the front BOLSTER 15. Loosen the through BOLTS and retighten them. Never tap MOLD-BLADE CAP.

**Note:* If the MACHINE is equipped with the old style CAP and has only one CROSS BLOCK, follow the same directions as above. The only difference is that the top of the CAP in this case will come flush with the top of the CROSS BLOCK, not fit over it. If this style CAP is used, be sure it is over to the left firmly against the SQUARING PLATE so that it will not strike on the CROSS BLOCK at the right end.

Slide the Blade 7 (Fig. 16) out of the Mold and remove the tissue paper, thus leaving a slight clearance between the Blade 7 and the Point Block 6. Be sure all the paper is removed. Then insert the Blade 7 again and put the Mold-blade Stop 12 on the left end of the Mold.

Caution: Be sure the Lugs on the left end of the Mold-blade Cores 10 and 11 are placed between the Stop 12 and the Mold Base 33 or breakage will occur.

The Cross-block Shoe 17 (Fig. 16) should never be loosened. If it works loose, readjust this Shoe 17 in relation to the front Type Clamp 31 to permit the proper amount of movement to the Type Clamp. The front Bolster 15 must be off the Machine when making this adjustment. Turn the Bolster 15 upside down and hold the Type Clamp 31 in its regular position against the rear side of the front Bolster 15 with the end which does the clamping projecting into its recess in the side of the Cross-block Shoe 17. Push the Shoe 17 to the rear until the front side of this recess just touches the Type Clamp 31. This will bring the front edge of the recess in the Shoe 17 in line with the rear surface of the front Bolster 15. The Shoe is to be clamped in this position by tightening its Screws. Be sure after it is clamped in this manner that the front edge of the recess in the Shoe does not project beyond the rear face of the Bolster. This can be tested by sliding the Type Clamp along the face of the Bolster until its end enters this recess in the Shoe and if it slides in freely without striking, it is evidence that the Shoe is not too far to the rear. If the Shoe is not adjusted in this manner, but is permitted to project to the rear, it will be struck by the Mold Blade. If it is adjusted too far to the front, it will not permit proper movement to the Type Clamp and the Type Clamp cannot perform its proper function of holding the type after it is ejected from the Mold.

Remove all four Bolts 46 and 47 (Fig. 20) from the top of the Bolsters. Clean and put on the Bracket 38. Put in and tighten its Screws. Two from the top, one from the front, and a hexhead Bolt from the left. If it is known what material is to be cast, the proper Matrix-holder Carrier 16 can be put into the Bracket 38 before positioning it as above. If a steel blank Matrix for high or low base material is used it must be placed in the Carrier 16 before placing Carrier 16 in its Bracket 38.

When changing a Matrix-holder Carrier 16 (Fig. 20) and 24 (Fig. 16) or taking it off for cleaning when the Mold

is on the Machine, do not remove the complete Bracket 23, but take off the Plate 22 from the Bracket 23 as this does not disturb the setting of the Bracket 23 itself.

Slide the Cross Block 16 (Fig. 16) gently into position and see that it goes in without touching the front Type Block 14 or the Mold-blade Cap for low material. Put the temporary Holding Screw down through the front Bolster 15 into the Cross Block 16.

This Screw must be removed *after* the Mold is put on the Machine and *before* the Machine is turned over. It is used only to keep the Cross Block 16 from falling out while placing the Mold on the Machine.

Putting a Mold Base on the Machine

When putting a Mold Base 33 (Fig. 16) on a Machine or when taking one off, always pull forward the Closure-cam Lever 46 (Fig. 18) and put a piece of material, for example a 36-point quad, between the Leather Buffer 34 and the face of the Casting 39 that this Leather Buffer 34 strikes against. This prevents the movement of the Closure 29 (Fig. 16) until the parts are ready to operate and thus prevents damage to the Closure 29 and other parts of the Mold Base 33. Be sure to take out this piece of material before starting to cast.

When applying a new Mold Base for the first time see that the Nozzle-seat Shield does not interfere with the Main Stand when the front bolts to the Mold Base are tightened.

To put the Mold Base Assembly on the Machine, first loosen the Galley Plate and slide it about one inch to the right to get at the Closure Abutment 4 (Fig. 19). Pick up the Mold Base Assembly and lower it into position to clear the Nozzle-seat Shield, lowering it slowly while engaging the Closure 29 (Fig. 16) with its Abutment 4 (Fig. 19) as the Mold Base 33 (Fig. 16) is lowered into position. Put in and tighten the four bolts from the top and the two from the front.

Putting Mold Unit on the Machine

Turn the Machine over until the Head 19 (Fig. 20) is all the way to the front and the Operating Bar 19 (Fig. 14) has just started on its stroke to the right (about $\frac{1}{16}''$). Take off the rear Bridge Support 36 (Fig. 20) and the Abutment Plates 32 (Fig. 16). Be sure the bottom of the Mold and the top of the Base are perfectly clean. Pick up the Mold

with the right hand under the BLADE to keep it from falling out. Be sure the SCREW holding the CROSS BLOCK 16 is in place to keep the CROSS BLOCK from falling. Slide the MOLD onto its BASE from the rear and engage the left end of the MOLD BLADE 7 with its OPERATING BAR 19 (Fig. 14).

Caution: Do not turn the MACHINE over until the ABUTMENT PLATES 32 (Fig. 16) are put on the rear of the MOLD BASE, the CROSS BLOCK 16 coupled and the CROSS-BLOCK HOLDING SCREW removed, or serious damage to the MOLD will result. Replace the ABUTMENT PLATES 32 (Fig. 16) and couple the CROSS BLOCK 16 after removing its HOLDING SCREW.

Determine whether fusion or non-fusion material is to be cast, then decide the approximate set-size which will first be cast. This determines the proper PACKING PIECE to be used at the left of the MOLD (see page 44).

Cross Block

Turn the COLLARS 23 (Fig. 20) on the TUBE 22 so that when the CROSS BLOCK 49 is all the way forward the rear end of the CROSS BLOCK will clear the front side of the MOLD BLADE by $\frac{1}{32}''$ to $\frac{1}{16}''$.

Lock the two COLLARS 23 (Fig. 20) together, using the pin wrenches 8162. On low CROSS BLOCKS a line has been etched—open to this line.

Turn the MACHINE only far enough to bring the CROSS BLOCK to the front of its stroke to test this setting, but not enough to move the MOLD BLADE to the right until this setting is completed. Put on the rear BRIDGE SUPPORT 36 (Fig. 20). This is important as it will protect the operator's hand in case the BRIDGE 14 swings down when the MACHINE is turned over.

Push the MOLD to the right and to the rear by hand. Then turn the MACHINE over, so that the CROSS BLOCK 49 (Fig. 20) will hold the MOLD back against the ABUTMENT PLATES 32 (Fig. 16) and at the same time hold the MOLD to the right, by hand, against the PACKING PIECE at the left of the MOLD. Bring up to bearing the five BOLTS 46 and 47 (Fig. 20) through the MOLD to the BASE, then tighten them. Couple the WATER PIPES.

Put in the TYPE-CLAMP PUSHER 18 (Fig. 16). Remove the temporary piece of tubing from the front of the long, right, through BOLT and put on the TYPE-CLAMP LEVER 20 (Fig. 16) and its STAND 19.

Swing the BRIDGE 14 (Fig. 20) into position and put the NUT 31 on top of the rear BRIDGE SUPPORT 36. Put the BUSHING 35 in place to connect the BRIDGE LINK 34 with the MATRIX-HOLDER CARRIER 16. Swing the BRIDGE LINKS 34 into position and put in the PIN 37. Connect the BRIDGE-PINION RACK 30 with the operating ROD 11 with the PIN 26. Adjust the NUTS 31 and 33 on the BRIDGE SUPPORT 36 for the lift of the MATRIX as previously described.

Caution: The SLEEVE 8 (Fig. 20) on the OPERATING ROD 11 must be off when using the steel blank matrix or breakage will occur.

Caution: Be sure to remove the piece of material used as a block behind the BUFFER 34 (Fig. 18) before starting to cast, or a "squirt" around the CLOSURE 29 (Fig. 16) and NOZZLE SEAT 35 with serious results will follow.

Cleaning Mold Closure

To clean the MOLD CLOSURE 3 (Fig. 19) without removing the MOLD from the MACHINE, remove the GALLEY COVER PLATE. Loosen the LOCK NUT 12 and screw out the ADJUSTING ROD 13 to relieve the tension on the SPRING 2. Remove the PLATE 6 and lift out the ABUTMENT 4. Pull the CLOSURE 3 carefully out to the right, clean it and replace it. Replace all parts in the reverse order from that just described in taking them out.

Changing Height of Product

When changing the height of product, such as changing from type to space material or the reverse, much care must be taken because of the CAP which is required by the low BLADE and CROSS BLOCK. The MOLD need not be taken apart, since the low BLADE plus the CAP is exactly the same height as the high BLADE, and, after the MOLD is assembled properly once, the BLADES may be interchanged and the clearance will remain correct, provided, of course, that the MOLD has not been loosened to allow the POINT BLOCK to move.

To change from high BLADE to low BLADE, proceed as follows: Take off the MOLD-BLADE STOP 12 (Fig. 16). Have the MACHINE turned over so that the CROSS BLOCK 16 is all the way to the front and the MOLD BLADE 7 has just started on its stroke to the right (about $\frac{1}{8}''$). Remove the five BOLTS 46 and 47 (Fig. 20) holding the MOLD to the BASE 33 (Fig. 16). Disconnect the MATRIX-HOLDER CARRIER 24 (Fig. 16). Remove the rear BRIDGE SUPPORT 36 (Fig. 20) and the two ABUTMENTS 32 (Fig. 16) on the rear of the BASE PLATE 33.

Slide the Mold to the rear far enough to disengage the Mold Blade 7 from its Operating Bar 19 (Fig. 14) and slide the Mold Blade out by pulling it to the left. Slide the Mold back far enough to slip the Cross Block 16 (Fig. 16) to the left, thus disengaging it from its Coupling 18 (Fig. 20) and pull out the Cross Block 16 (Fig. 16).

Clean off the low Blade, the low Cross Block, and the Mold-blade Cap. Put the Cap in from the top of the Mold by slipping the left end of the Cap under the Point Block and sliding it down and to the left until the projection on the front of the Cap fits into the Cross Block opening. Put in the Cross Block to hold the Cap in place. Slide the low Blade in from the left, taking care to have it under the Cap.

Remove the Cross-block Coupling 18 (Fig. 20) and Coupling Screw 17. Slide the Mold toward the front engaging the Mold Blade into its Operating Bar 19 (Fig. 14). Put the two Abutments 32 (Fig. 16) on the rear of the Base Plate 33 and the rear Bridge Support 36 (Fig. 20). Push the Mold back against these Abutments and to the right against the Packing Piece and make the Mold fast by the five Bolts 46 and 47 (Fig. 20) to the Base Plate. Put on the Mold-blade Stop 12 (Fig. 16), making sure the lugs on the Core of the Blade are between the Packing Piece and the Stop 12. Couple the Cross Block 49 (Fig. 20) to the Operating-tube Head 19 by means of the Coupling 18 and Coupling Screw 17. Connect the Matrix-holder Carrier 24 (Fig. 16) to the Bridge 14 (Fig. 20).

To change from low Blade to high Blade, the procedure is just the same except the Cap is removed in the reverse order from that in which it is put in.

CLOSURE SETTING WITH No. 0 ADJUSTING PACKING PIECE

The No. 0 Packing Piece 1 (Fig. 16) has a Wedge 3 with six steps numbered 0, 1, 2, 3, 4, and 5. This Wedge 3 is put in with the steps to the right and is moved to the proper step to keep the right end of the Stop Plate 13 inside the Mold cavity; that is, to the right of the right end of the Mold Blade when it is drawn to the left for sizing. As the set-size is made smaller, the Wedge must be pushed further in to move the Stop Plate 13 to the right. The position of this setting can be watched by examining the foot of the

type cast to see where the end of the Closure 29 and Stop Plate 13 come.

Watch also the setting of the Closure 29 (Fig. 16) as indicated by the zero marking on the Plate 28. To open the Closure 29 screw the Nut 7 (Fig. 18) further on the Rod 5, and screw it off to make the opening less.

Caution: Never adjust the Closure 29 (Fig. 16) or Stop Plate 13 to open further than the size of the Mold cavity; that is, never open the Closure more than the marking on the Plate 28 calls for, as this would bring the end of the Closure 29 to the right of the left face of the Cross Block 16, or the end of the Stop Plate 13 to the left of the right end of the Mold Blade 7, and would permit the metal from the Nozzle to strike under the Cross Block 16 or the Mold Blade 7 which would tend to raise them and cause damage as well as give poor type.

SPECIAL CASTING

Casting Corner Pieces

For casting corner pieces a Mold Blade without Cores is used. The Blade is drawn back just far enough so that one leg of the corner piece will be the correct thickness when cast between the end of the Blade and the left face of the Cross Block. The other leg of the corner piece is cast in a recess ground in the rear side of the Blade. One Blade will, therefore, cast only one thickness and length of leg and for a different thickness or length another Blade is required.

A special Packing Piece is also required. This is about $\frac{5}{32}''$ x $\frac{7}{16}''$ x $7\frac{1}{2}''$ long. It is placed at the back of the Mold between the two Abutments 32 (Fig. 16) and the rear Bolster 25. This moves the Mold forward so that the Closure opening comes close to the rear side of the rear leg of the corner piece.

Then adjust the Closure 29 (Fig. 16) so that it comes close to, but not under the left face of the Cross Block 16. Use the No. 0 Packing Piece at the left of the Bolsters 15 and 25 and adjust its Wedge 3 to get the best face and body on the corner piece. This setting of Closure 29 and Stop Plate 13 is much the same as for casting small set-sizes of type.

Mold Blades for Giant Caster corner pieces are made in two styles, plain and recessed. The plain Blade casts

corner pieces with perfectly straight plain walls, while the recessed corner piece BLADE casts a depression or recess in the inner face of each leg. The object of this recess is to direct the metal to the far corners of the face and also permit casting faster without blisters.

Plain BLADES are made either .853″ high for casting high corner pieces and face material or of the usual low heights, as ordered, for lockup corners. The recessed corner piece BLADES are made only .853″ high. Both plain and recessed corner piece BLADES are made with legs either 6 points thick or 12 points thick as ordered.

The BLADE must be made to suit the length of legs desired. One leg of the corner piece must always be 72 points long, because this is the point-size of the MOLD and this leg is cast across the end of the BLADE, which makes it 72 points long. The other leg of the corner piece is cast in a recess cut in the side of the BLADE and may be made 72 points long, 78 points long, or 84 points long, as ordered. The reason for these different lengths is to suit the different column widths of newspapers. To box a column 12 picas wide requires two corner pieces with 72 point legs. To box a column 12½ picas wide requires that one leg be 72 points and the other 78 points. To box a column 13 picas wide requires one leg 72 points and the other 84 points.

Corner piece MATRICES must be ordered to suit the length of legs on the corner piece BLADE which the customer has in his MOLD. The specimen sheet states that the first figures following the letter indicates the length of leg of the corner piece. Since one leg is always 72 points long, a single figure would indicate the length of the other leg. Thus, S72 has both legs 72 points or 6 picas long; S78 has one leg 72 points long and the other 78 points or 6½ picas long; S84 has one leg 72 points and the other leg 84 points or 7 picas long. Be sure to specify the correct symbol for the corner piece MATRIX to suit the BLADE. The first letter on the MATRIX symbol tells the style—S is square corner rule, R is round corner rule, N is decorative corner. The last part of the symbol following the dash identifies the rule or border which the corner piece matches.

Casting Faces on Smaller Bodies

To cast a given point size face on the next smaller point size body, special PACKING PIECES are required for moving the MATRIX-HOLDER-CARRIER BRACKET the proper amount toward the rear. These PACKING PIECES are as follows:

For casting 72-point face on 60-point body use PACKING PIECE 53GC75 which is ten points thick.

For casting 60-point face on 48-point body or 48-point face on 42-point body use PACKING PIECE 53GC76 which is five points thick.

For casting 42-point face on 36-point body no PACKING PIECE is required.

These PACKING PIECES are placed in front of the MATRIX-HOLDER-CARRIER BRACKET 23 (Fig. 16), between it and the POINT BLOCK 6, and the screw holes in the BRACKET 23 are elongated to permit this movement.

The above provides for caps and figures or any characters which do not kern over six points on the bottom. To cast the lower case of 72-point on a 60-point MOLD and the lower case of 60-point on a 48-point MOLD requires that the 60- and 48-point MOLDS have added clearance for this 12-point kern. If the MOLD does not have this added clearance this alteration can be made only in our factory.

Casting Faces on Larger Bodies

To cast 42-point face on a 48-point body no special equipment or instructions are required. Simply use the 42-point matrices on the 48-point MOLD the same as 48-point matrices would be used. The 42-point of any given series when cast on 48-point body will line perfectly with the 48-point of the same series. The same holds true for casting 60-point on 72-point body.

Do not under any circumstances try to cast 42- or 48-point matrices on 60- or 72-point body as this will result in a serious squirt.

Special Alignment

For artistic or commercial reasons it is sometimes desired to cast a face on some alignment other than standard. For this purpose PACKING PIECES can be provided within the limits of the MACHINE. These PACKING PIECES for varying alignment are similar in appearance to and are used in the same place and manner as those described above for "CASTING FACES ON SMALLER BODY." Alignment can be made lower than standard by this means but not higher.

Reducing Set Sizes

In order that adjustments for position set-ways may be made, MACHINES 9575 and 9577 and following are provided with one MATRIX-HOLDER-CARRIER BRACKET 23 (Fig. 16)

with each MACHINE instead of a MATRIX-HOLDER-CARRIER BRACKET with each MOLD as previously furnished. This BRACKET can be used with any GIANT CASTER MOLD having the tapered SQUARING PLATE and WEDGE mentioned below.

In addition to the adjustment point-ways by means of the liners already described, the new BRACKET has an adjustment set-ways by means of a WEDGE 37 (Fig. 16) between the left end of the BRACKET 23 and the SQUARING PLATE 5. The upper part of the SQUARING PLATE 5 has a taper on it to match the taper of the WEDGE 37. The WEDGE 37 has a zero mark and is graduated each side of this zero mark. When the zero mark on the WEDGE 37 is opposite the reference mark on the SQUARING PLATE 5, the BRACKET 23 is in normal position for casting as designed. By moving the WEDGE 37 the BRACKET 23 is moved set-ways and with it the MATRIX to bring the character closer to or farther from the CROSS BLOCK side of the type body. By adjusting the amount the MOLD BLADE draws back, the distance from the face to the side of the body (side bearing) on that side is governed. This provides a means for casting type, evenly fitted, on a wider or narrower body set-ways as desired.

GENERAL INSTRUCTIONS

Material Guide

This MATERIAL GUIDE, shown in Fig. 22 is for keeping fusion material straight. It goes across the left end of the GALLEY PLATE, close to the MOLD. The right-hand SUPPORT 10 clamps on the casting at the rear side of the GALLEY PLATE and the slot at the bottom of the SUPPORT 6 shown at the left fits over the front edge of the GALLEY PLATE. The BRACKET 7 carrying the three ROLLERS 5, 13 and 14 can be moved front or rear on the ROD 3 and also tilted up and down and clamped in any position desired by the CLAMPING SCREW 8. This BRACKET 7 should be moved so that the center ROLLER 13 will come on the side of the material toward which the strip tends to curve and then swung down so that one of the upper ROLLERS 5 or 14 touches the material with just enough pressure to keep it from curving up. The BRACKET 7 should be clamped in this position by CLAMPING SCREW 8. The center ROLLER 13 is carried on an eccentric and is to be turned by the HANDLE 1 at the top so that the ROLLER 13 bears against the side of the material with just enough pressure to keep the strip straight as it comes from the MOLD.

Screwing in the knurled HANDLE 1 clamps the eccentric in position.

Blank Matrices

For casting base or spacing material, whether continuous strip or quads and spaces, use a hardened steel blank MATRIX. Tighten its clamping SCREW and then back it off half a turn to free the MATRIX and permit it to seat squarely on the MOLD. There are two sizes of steel blank MATRICES, one for 72 and 60 point and the other for 48 point and smaller. These steel blank MATRICES take the place of both MATRIX and MATRIX HOLDER. The gray metal blank MATRICES are only for casting when warming up a MOLD preparatory to casting a font or for casting a few quads and spaces with the font and will not stand the service of long continuous casting as will the hardened steel blank MATRICES.

Closure Opening

Position the CLOSURE opening, as controlled by the PACKING PIECES and CLOSURE ADJUSTMENT, to bring the opening as near the center of the body of the type as possible. This applies to all sizes of body up to the very largest. (For corner pieces see that heading.)

Piston Spring

Do not screw down the NUT on the upper end of the PISTON SPRING ROD any further than neccesary to get good product. To much pressure causes a tendency to burr, especially on the small size bodies and increases the wear on the MATRICES.

Water

Regulate the water to suit the product being cast. Always turn off the water when stopping casting, even if only for a few minutes. When casting has started, turn on the water after a few casts and regulate to suit the product. Water need not be shut off when changing from one MATRIX to another in casting a font.

Motor Starting Box

The SAFETY SWITCH is for starting and stopping the MOTOR only. Never start this MOTOR under load, always have the MACHINE CLUTCH thrown out so that the MOTOR starts idle. The MOTOR is left running when the MACHINE is stopped unless for a considerable period, when the MOTOR may also be stopped if desired.

Motor Belt

The MOTOR is mounted on a vertical BASE PLATE on the left side of the MACHINE. This BASE PLATE is hinged at the top and has at the bottom an ADJUSTING STUD with LOCK NUTS so that the MOTOR BASE may be swung out at the bottom to tighten the BELT from the MOTOR to the SPEED CHANGE DEVICE.

Oiling

The CAMS run in oil and the WORM and WHEEL run in oil also. MONOTYPE TYPE MOLD OIL is used for oiling all parts of the MACHINE, except the MOLD, (for which RULE MOLD OIL is used), and the WORM and WHEEL for which see next paragraph.

To oil the WORM and WHEEL stop the MOTOR and pour oil in the top of the WORM BOX very slowly until it just shows in the oil groove at the front end of the bottom of the BOX where the end of the SHAFT can be seen. If oil is poured in here while the MOTOR is running it will carry around with the parts so that if enough is put in to show as described, the excess on the moving parts will run out when the MACHINE is stopped. For this WORM and WHEEL a heavy cylinder oil is desirable.

To fill the CAM-SHAFT CASE, take out the OIL-CAN POCKET in the middle of the front, and pour oil into the CASE until it shows in the elbow at the lower left corner.

Micrometer-wedge Graduated Wheel

The setting of this GRADUATED WHEEL 5 (Fig. 17) must be checked each time a MOLD change is made, to be sure that the reading on the SCALE 11 corresponds with the actual size of body being cast. To set this GRADUATED WHEEL proceed as follows:

Cast non-fusion material such as type or spaces of any size until the MOLD is properly warmed up to normal running conditions. Then, by trial, adjust the set-size being cast, until when measured with the micrometer it is exactly the same as any one of the sizes given on the GIANT CASTER TABLE OF TYPE SIZES. Have the MICROMETER-WEDGE SCREW 13 (Fig. 17) locked with LOCKING SCREW 7 (use KNOB 6 to tighten it) when making the final check on this size. With the MICROMETER-WEDGE SCREW 13 still locked with its LOCKING SCREW 7, loosen the CLAMP SCREW 19 holding the GRADUATED WHEEL 5 on the MICROMETER-WEDGE SCREW 13 and turn this GRADUATED WHEEL 5, without disturbing the SCREW 13 until the reading on the VERTICAL SCALE 11 for picas and half picas and on the GRADUATED WHEEL 5 for points and fractions of a point is exactly the same as given on the GIANT CASTER TABLE OF TYPE SIZES for the size being cast in ten-thousandths of an inch. Clamp the GRADUATED WHEEL 5 to the MICROMETER-WEDGE SCREW 13 by tightening its CLAMP SCREW 19—but not to tightly or it may break WHEEL 5. This setting may then be tested by loosening CLAMP SCREW 7 unclamping the MICROMETER-WEDGE SCREW 13, turning it by means of KNOB 4 until the GRADUATED WHEEL 5 comes to some other desired position, reclamping the MICROMETER-WEDGE SCREW 13, and casting and measuring a few pieces of type to see that they coincide with the new setting of the GRADUATED WHEEL 5.

Speed of Casting

The item given as "REVOLUTIONS OF REGULATING WHEEL" refers to the little WHEEL at the lower front of the BASE used to change the setting of the speed device. The number of turns given in the TABLE is the number that this little WHEEL would have to be turned, starting from the slowest speed as the zero point.

TABLE OF SPEED CHANGE DEVICE

Revolutions of Regulating Wheel	Casting Machine R.P.M.	Change In the Speed
0	6	
2	7½	1½
4	9	1½
6	10½	1½
8	12	1½
10	14	2
12	16½	2½
14	19½	3
16	22½	3
18	26½	4
20	31½	5
22	38	6½
24	46	8

Speeds obtained at every second revolution of the REGULATING WHEEL, starting at the lowest speed, and the amount of change in speed from one setting to the next. Intermediate speeds may be obtained by making a single turn or even part of a turn of the REGULATING WHEEL.

When an equipment includes 14 and 18 point Style GC1 MOLDS for casting type, a larger motor pulley can be supplied

CASTING DATA

Guide for Approximate Settings

42 POINT

Set Size In Points	Use Packing Piece*	Speed in R.P.M.	Turns of Speed Regulating Wheel
10	0	38	22
20	0	26½	18
30	½	22½	16
40	1	16½	12
50	1	14	10
60	2½ or 3	12	8
70	3	10½	6
80	3	9	4
90	3	7½	2

48 POINT

Set Size In Points	Use Packing Piece*	Speed in R.P.M.	Turns of Speed Regulating Wheel
10	0	38	22
20	0	22½	16
30	½	16½	12
40	1	14	10
50	1	12	8
60	2½ or 3	11	7
70	3	10½	6
80	3	9	4
90	3	7½	2

60 POINT

Set Size In Points	Use Packing Piece*	Speed in R.P.M.	Turns of Speed Regulating Wheel
10	0	22½	16
20	0	16½	12
30	½	14	10
40	1	13	9
50	1	12	8
60	2½ or 3	11	7
70	3	10½	6
80	3	9	4
90	3	7½	2

72 POINT

Set Size In Points	Use Packing Piece*	Speed in R.P.M.	Turns of Speed Regulating Wheel
10	0	19½	14
20	0	16½	12
30	½	15	11
40	1	14	10
50	1	12	8
60	2½ or 3	11	7
70	3	10½	5
80	3	9	4
90	3	7½	2

*For Type or Non-Fusion Space Material. For Fusion Material Packing Piece 3 is used on all point sizes.

which will give speeds from 8 to 64 r.p.m. instead of from 6 to 46 r.p.m.

The proper speed for casting material of different point-sizes, set-sizes, and heights, can best be determined by trial. A little experience will readily indicate the best maximum speed for each style of product.

The information on the "TABLE OF CASTING DATA" here given is based on data gathered during tests in our factory and may be used as an approximate guide for setting the speed for different sizes of material, but this speed may need to be varied due to different conditions of metal.

Temperature of Metal

The proper temperature for the type metal varies considerably. It is affected by the grade of metal being used, the size of the cast, the speed, the amount of water, the kind of product, etc. For standard Monotype metal the temperature for casting larger size type will be about 650 degrees, and for small sizes slightly higher. Fusion strip material usually casts at a temperature 25 to 50 degrees lower than type.

SUPPLEMENT

Other Giant Caster Molds

In the fore part of this book we have described Style GC MOLDS in 36, 42, 48, 60, and 72-point sizes for casting type from .065″ drive GIANT CASTER MATRICES 42 point to 72 point in size and also for producing base material for furniture and cut mounting.

Style GC1 Molds

In addition to the above, there are available for use on the GIANT CASTER, Style GC1 MOLDS in 14, 18, 24, 30, and 36 point sizes for casting type from .050″ drive display Matrices in these sizes and also for base material for use as furniture and for cut mounting. The 14- and 18-point sizes cast material without a core, the 24- and 30-point sizes have a single core, while the 36-point size has a double core.

The 14 and 18 point Style GC1 MOLDS are regularly fitted with BLADES for casting type and spaces only. These BLADES are marked TYPE. For casting fusion a special BLADE is required. This special BLADE is marked FUSION.

These MOLDS are similar in general construction to the Style GC MOLDS described in the main part of this book and the same directions apply with the following addition:

Clamp for 14 and 18 Point GC1 Molds

Because these 14- and 18-point Style GC1 MOLDS cast material without a core they require a different clamping device to grip the product when casting fusion material. Style GS MOLDS, which cast only base material, also use this special clamping device as will be described later.

Figure 23 shows this special CLAMP and its operating device. LEVER 20 having the short ARM on its rear end pointing upwards, engages the INTERMEDIATE LEVER 13, which operates the special CLAMP 6, and this CLAMP 6 grips the material before the MOLD BLADE moves to the left, and thus prevents the material being sucked back by the BLADE.

ADJUSTMENT

Adjust the SCREW 11 in the INTERMEDIATE LEVER 13 and lock it with its LOCK NUT 15, so that the rear end of the CLAMP 6 when it is all the way forward comes .005″ to the front (operating position) of the rear face of the front TYPE BLOCK. In this position it clears the MOLD BLADE by .005″.

When casting type or any single-cast non-fusion material, LEVER 20 is taken off and the standard LEVER 22 is put in its place. This standard LEVER has the short ARM on its rear end pointing down. In this position it does not operate the INTERMEDIATE LEVER 13 and the special CLAMP 6 becomes inoperative. Instead, LEVER 22 operates the regular TYPE CLAMP 9 through PUSHER 10. To insure TYPE CLAMP 9 gripping thin set-sizes hold it to the left when assembling.

Caution: Be sure that the correct CLAMP is operative for the style of product to be cast. If the wrong LEVER 20 or 22 is used so that the wrong CLAMP is being operated, serious damage to the MOLD may result.

Caution: When changing from fusion to non-fusion, turn the MOLD-BLADE STOP upside-down with its EXTENSION on the under side. *Never remove the Extension*—just turn the STOP with the EXTENSION on top for fusion and on the bottom for non-fusion. Always turn this STOP to the position for the style of product to be cast before making any other changes on the MOLD. Damage to the MOLD BLADE *will* result if this Caution is disregarded.

Nozzles

All style GC1 MOLDS take NOZZLE 92GC9, except on early MACHINES not equipped with the GIANT POT and PUMP on which NOZZLE 92GC10 which is 1/4″ longer is used. Both of these NOZZLES have No. 16 drill hole (.177″ diameter) from the bottom to 3/16″ from the top. In the top they have No. 27 drill hole (.144″ diameter) slightly offset from the center. They also have two vent holes in the tip drilled diagonally with No. 60 drill. Should these vent holes become clogged they can be cleaned with No. 60 drill held in the fingers (never in a hand drill) or use a small wire such as a paper clip. These NOZZLES are equipped with a LOCK NUT so that the vent holes may be positioned correctly. For wide bodies the vent holes point toward the MOLD BLADE, but for narrow set-sizes where the BLADE would cover the vent holes the NOZZLE should be given about one-third of a turn further to bring the vent holes diagonally back to the right. Always lock the NOZZLE with its LOCK NUT.

Matrix Holder

As standard DISPLAY MATRICES are used on these MOLDS instead of GIANT CASTER MATRICES a special MATRIX HOLDER Xa45GC17 is required. This MATRIX HOLDER grips the MATRIX between a fixed ABUTMENT which is held by two

SCREWS, and a CLAMP which is held by one SCREW. This standard fixed ABUTMENT is straight on the side. For DISPLAY MATRICES having extra wide characters which require moving set-ways to get the character on the body, a special ABUTMENT is also furnished having a lip on its gripping edge which moves the MATRIX three points to the left. This special ABUTMENT need be used only when the MATRIX has to be moved more than three points, because the first three points of movement are obtained by the WEDGE 37 (Fig. 16) which positions the ADJUSTABLE-MATRIX-HOLDER-CARRIER BRACKET 23.

A separate MATRIX HOLDER Xa45GC25 is required when English DISPLAY MATRICES are to be used. This MATRIX HOLDER is somewhat similar in appearance to the one for American DISPLAY MATRICES as described above and grips the MATRIX in a similar manner between an ABUTMENT and a CLAMP. It will not be confused with the one for American DISPLAY MATRICES, because of the difference in size of MATRIX which it accommodates, the English MATRICES being 1″ square.

Matrix-holder Rest

With each equipment is supplied a MATRIX-HOLDER REST X162GC, which is a wooden stand mounted on a board. The board is placed on top of the open drawer in front of the shelf on the GIANT CASTER, and the drawer is then pushed in until the board is gripped between the front of the drawer and the shelf. The stand which forms the rest for the MATRIX HOLDER is shaped so that the MATRIX HOLDER when turned with the MATRIX upward will fit the stand. The object is to hold the MATRIX HOLDER while removing and inserting the MATRIX, because the MATRIX HOLDER gets quite hot when used continuously. The MATRIX is removed and the new one fastened in place by loosening and tightening the SCREW holding the CLAMP. A small screwdriver is supplied with the equipment for this purpose.

Matrix-holder Carrier

A special MATRIX-HOLDER CARRIER Xa46GC8 forms part of the equipment. The MATRIX HOLDERS for DISPLAY MATRICES will not fit in the standard CARRIERS for GIANT MATRICES nor will the regular MATRIX HOLDERS for GIANT MATRICES fit in this special CARRIER for DISPLAY MATRICES.

Matrix-holder-carrier Bracket

These smaller point-size MOLDS are equipped to take the adjustable MATRIX-HOLDER-CARRIER BRACKET 23 (Fig. 16), which can be moved set-ways three points either side of the zero position by the use of the WEDGE 37. The earlier GIANT CASTERS did not have this adjustable BRACKET, but instead each MOLD was equipped with its own BRACKET which was specially fitted to it and which could not be moved set-ways. On any such older equipment, the first time we furnish a MOLD which requires the adjustable BRACKET this BRACKET must be furnished. Therefore, if the customer receiving these 24-, 30-, and 36-point MOLDS does not have an adjustable BRACKET in his plant, one will be supplied with this equipment. In no case will the adjustable BRACKET be supplied where there is one now in the plant. This adjustable BRACKET gives the first three-points movement to the MATRIX when it must be moved set-ways to accommodate the extra wide characters to the MOLD. Another three-point movement may be obtained by using the special ABUTMENT on the MATRIX HOLDER instead of the standard ABUTMENT as already described under "MATRIX HOLDER."

Point-ways Alignment

To take care of the varying alignment requirements of DISPLAY MATRICES and to duplicate the alignments already produced on TYPE CASTERS and COMPOSING MACHINES equipped with DISPLAY ATTACHMENT, these GC1 MOLDS are equipped with means for moving the MATRIX point-ways to obtain desired alignment. This is done by making the top portion of the POINT BLOCK 6 (Fig. 16) with a taper on the rear side and providing a WEDGE 38 between this tapered POINT BLOCK and the side of the MATRIX-HOLDER-CARRIER BRACKET 23. This WEDGE 38 gives sufficient movement for all normal point-ways adjustments. When it is necessary to get one point-size face on another point-size body, PACKING PIECES a53GC213 and a53GC214 are provided for use in addition to the ADJUSTING WEDGE 38. These are placed between the WEDGE 38 and the MATRIX-HOLDER-CARRIER BRACKET 23 and one or both are used as required.

Casting Conditions

These Style GC1 MOLDS take the same PACKING PIECES for positioning the MOLD for different lengths of cast and styles of product and require approximately the same casting

conditions as do the corresponding set-sizes and styles of product of the larger point-size (42 to 72 point) Style GC MOLDS as described in the fore part of this book.

Display Matrix Sizes

Since the mechanism on the GIANT CASTER for determining the set-size of the type body is given in picas and points and fractions of a point it is necessary when casting from DISPLAY MATRICES to translate the MATRIX markings into points. The markings on these DISPLAY MATRICES indicate the positions of the wedges on the TYPE CASTER. To translate these markings into points requires the card "Wedge Positions for Casting Spaces and Quads," one of which is sent with each type equipment, 36 points and smaller, for the GIANT CASTER. By finding on this table the wedge positions corresponding to the numbers given on the MATRIX, the width in points is determined and the GIANT CASTER type sizing mechanism adjusted accordingly. For example, if the MATRIX markings are *7-4, the table gives the type body corresponding to these MATRIX markings as 7½ points in width. If the MATRIX markings are 7-4 (with no asterisk) the table gives the type size as 24½ points in width.

Some extra wide characters in DISPLAY MATRICES are wider than will go on the normal DISPLAY MATRIX and an extra wide MATRIX is used for such characters. The maximum set-size body which can be cast on the TYPE-&-RULE CASTER is 39 points in width and such extra wide characters are therefore marked "39" to indicate that they are to be cast on a body this maximum width on the TYPE CASTER. When cast on this size body, the character will overhang on one or both sides and such overhang cannot be avoided on the TYPE CASTER. On a GIANT CASTER type equipment, 36 points and smaller, the full size body setways can of course be obtained. It will therefore be necessary when casting these extra wide characters (see "MATRIX HOLDER," page 47) which have a marking "39" instead of the wedge position numbers, to obtain the proper set-size body by trial. Be sure the special MATRIX-HOLDER ABUTMENT is used to move this large MATRIX to the left and measure the width of the character with a pica scale to obtain the approximate width of body for the first trial cast.

STYLE GS AND 1GS MOLDS

There are still other styles of MOLDS available for use on the GIANT CASTER. These MOLDS cast material without a core. They do not cast any type because the top of the MOLD is closed with a POINT BLOCK over the casting cavity so that no MATRIX is used.

Style GS MOLDS are for high or low base material in 18, 24, and 30 point sizes. Only one height material may be cast in a MOLD, but one, two, or all three point-sizes of the same height may be combined in one MOLD.

Style 1GS MOLDS are similar to STYLE GS MOLDS, except that they produce electrotype bearers instead of base material. The width and heigth of the shoulder may be selected, but must be the same for all point-sizes cast on the same MOLD, the difference in point-size being in the type-high portion of the bearer. These Style 1GS MOLDS are furnished in 18, 24, and 30 point sizes and one or more of these sizes may be combined in the same MOLD under the conditions just described.

With Style GS and Style 1GS MOLDS, the same special clamping device is used as was described for Style GC1 MOLDS and as illustrated in Figure 23 with the exception that LEVER 22 is not used because these Style GS and 1GS MOLDS cast no type.

POSITIONING BAR 53GC67 is required with these MOLDS to bring them in correct relation to the NOZZLE. The BAR is placed in back of the MOLD between the MOLD and its ABUTMENTS 32 (Fig. 16) on the rear of the BASE PLATE 33 so as to properly position the MOLD with relation to the NOZZLE. This BAR is the same as used with Style GC MOLDS when equipped with a CORNER PIECE BLADE, and if a customer already has a MOLD equipped with a CORNER PIECE BLADE, this POSITIONING BAR is not supplied with Style GS and 1GS MOLDS because only one is required in a plant.

MACHINES prior to 9129, except 9070, 9124, and 9126, require the improved style of GAG BLOCK a51GC14 unless previously supplied. MACHINES prior to 9661 require also the improved TRIP LEVER (for CALCULATING SCALE) a65GC2. This improved GAG BLOCK and the TRIP LEVER remain permanently on the MACHINE.

Straightening Material

If the material comes from the MOLD slightly curved use GUIDE PLATE a24GC2 if the material tends to curve down.

This GUIDE PLATE is positioned at the rear left corner of the GALLEY-STAND COVER PLATE 24GC1 and is held by the SCREW 25GC1 in the rear left corner of the GALLEY PLATE. This GUIDE PLATE is applied so that it arches up and the material rests on it. The regular GUIDE shown in Fig. 22, is then adjusted to keep the material perfectly straight. The use of this GUIDE has been fully explained in the forepart of this book.

To Change Point-Size

When these MOLDS are equipped with BLADES of more than one point-size, proceed as follows to change from one point-size to another:

TAKING APART

Take the MOLD off the MACHINE complete and put it on a BASE PLATE on a bench. Take out the MOLD BLADE and CROSS BLOCK. Put in two of the vertical BOLTS down through the rear BOLSTER into the BASE PLATE and tighten them slightly. Remove from the top of the BOLSTER the CLAMP (complete) that helps hold the MOLD UNIT in place. Take out the three through BOLTS (the long BOLTS running horizontally from front to rear). Take out from the left end the two BOLTS fastening the front BOLSTER to the SQUARING PLATE, and lift off the front BOLSTER. Take out the right-front TYPE BLOCK which is a loose piece. Lift out the rest of the MOLD UNIT consisting of rear TYPE BLOCK, POINT BLOCK, and left-front TYPE BLOCK, all held together by two SCREWS. Remove these two SCREWS and take out the POINT BLOCK.

CLEANING

Carefully clean the front face of the rear BOLSTER, the face of the SQUARING PLATE and the BASE PLATE where the MOLD UNIT is to go. Make sure there is no dirt or particles of metal in the corners. Clean all parts of the MOLD UNIT including the desired POINT BLOCK. Clean the front BOLSTER.

ASSEMBLY

It is extremely important to have the top of the rear and left-front TYPE BLOCKS and the top of the POINT BLOCK absolutely flush with each other—otherwise the clearance between the BLADE and POINT BLOCK will not be correct and trouble will follow. A good way to accomplish this is to set the rear TYPE BLOCK upside down on some smooth surface. The POINT BLOCK may then be set (upside down) on

the smooth surface beside the rear TYPE BLOCK, then the left-front TYPE BLOCK beside that. All these parts are upside down and care must be taken to have them correctly in their respective positions.

Insert the two SCREWS through the front TYPE BLOCK and POINT BLOCK into the rear TYPE BLOCK and bring them to a good bearing. Be sure the proper SCREWS are used—for 18 and 24 point *short* SCREWS are used and for 30 point *longer* SCREWS are used. The SCREWS must not project through the rear TYPE BLOCK. The left ends of the POINT BLOCK and rear TYPE BLOCK should be flush, but *the left-front Type Block must project .001" or more to the left of the rear Type Block.* Under no circumstances should the left end of the left-front TYPE BLOCK be positioned flush with or to the right of the left-end of the rear TYPE BLOCK. Turn the MOLD UNIT right-side-up again and make sure every part is in its correct position and *that the Type Blocks and Point Blocks are flush on the top.* Test the top and left end with a square or a straight-edge or an edge of the CROSS BLOCK.

The right-front TYPE BLOCK is a loose piece and is not to be assembled with the rest of the MOLD UNIT. Disregard it for the present.

Place MOLD UNIT firmly against rear BOLSTER and also against the SQUARING PLATE at the left. See that the front BOLSTER is clean and put it in place. Put in the two left hand through BOLTS from front to rear and the two BOLTS at left fastening this BOLSTER to the SQUARING PLATE. Tighten these BOLTS, making sure that there is no dirt or metal between the BOLSTER and the SQUARING PLATE. Put the right-front TYPE BLOCK in position. Insert and tighten the right through BOLT.

The two SCREWS in the right-front TYPE BLOCK are used only for shipment purposes and are to be left out when assembling for operating so that if a squirt occurs the two right and vertical BOLTS, one in the front BOLSTER and one in the rear BOLSTER, may be loosened, the right through BOLT removed, and the right TYPE BLOCK tapped out to the right for cleaning out the squirt. (Use the MOLD CLEANING TOOL for tapping out the TYPE BLOCK.)

Put on the CLAMP that holds the MOLD UNIT in place and tighten down on its SCREW until it has a good firm bearing, but is not too tight. Remove the two vertical SCREWS which were used temporarily to hold the rear BOLSTER to the BASE and the MOLD is ready to be put back on the MACHINE and run.

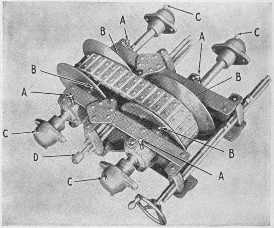
Note: If the right end of the right-front BLOCK tends to drop slightly lower than the rear BLOCK it will do no harm, as the right-front TYPE BLOCK bears only on the left end on the CROSS BLOCK. Hold down the left end only when tightening the BOLTS clamping the right-front TYPE BLOCK.

Remember: The SCREWS are to be left out from the right-front TYPE BLOCK so that it may be removed for cleaning a squirt. To remove the right TYPE BLOCK, loosen the vertical BOLT in the right-hand end of each BOLSTER, remove the right horizontal through BOLT and then, using the MOLD CLEANING TOOL, tap the right-front TYPE BLOCK out to the right.

GIANT CASTER SPEED CHANGE DEVICE

Lubrication

Fill the THRUST BEARINGS A on the DISK HUBS every six to twelve months. Use a good grade of ball-bearing grease or non-fluid oil. (Do not use hard oil or ordinary cup grease.) Oil the DISK HUBS B every five or ten days, depending on local conditions, just enough to keep parts free from rust.



BALL-BEARING SHAFT BEARINGS C should be refilled with grease every six to twelve months.

When BALL BEARINGS are operated in rooms where the temperature is sufficient to melt the grease in the bearings, they should be refilled every two to four weeks.

When filling BEARINGS, remove both PLUGS and force the grease entirely through the BEARINGS with a grease gun.

Be careful to wipe off all the dirt or dust on the BEARING CASINGS before removing PLUGS. This will prevent any dirt getting into the BEARINGS with the grease. *Keep the grease in a closed can.*

General Instructions

Never attempt to change speeds or to tighten the V BELT unless the transmission is running.

The V BELT is adjusted (made tighter or looser) by turning the SCREW D. Do not run the BELT too tight. Use just sufficient tension to pull the load without slipping. When correctly adjusted the BELT will have a little slack or "sag" on the lower side while running. Never use belt dressing.

Check the V BELT to see that it runs level and true. If one side rides high it indicates that one of the DISKS on which the BELT rides is "sticking" and not turning properly on the shaft due to insufficient or improper lubricant. If this occurs, stop the transmission at once and correct it before attempting to run it again. To correct this it is necessary to remove the BELT, clean the bearing of the DISK on the shaft (with kerosene) until the DISK moves freely. Then lubricate the bearings with soft ball-bearing grease. Replace the BELT to run in the opposite direction from that in which it was running before removal (to even the wear).

Keep the DISK clean and free from grease, acid, or water. Make a practice of checking over the running conditions as well as the greasing at regular intervals. It is well to shift the transmission through its entire speed change once a day to make sure all parts are properly lubricated at all positions and that they move freely.

If any parts of the transmission are removed for any reason be sure to replace them *exactly* as they were.

NOTES

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PLATE I

Figure 1

Part No.	Symbol	Name
1	15H1	Squaring Pin
2	Xa103GC	Pump Body
3	a103GC19	Plug

Figure 2

Part No.	Symbol	Name
1	a106GC1C	Lifting Lever (nozzle end)
2	a106GC4	Fulcrum Pin
3	92GC4	Nozzle (for GC & GS Molds)
	92GC9	Nozzle (for GC1 Molds)
4	54GC1	Base Plate
5	a48GC1	Melting Pot (gas)
6	a48GC11C	Pot Casing
7	a48GC15	Adj. Lug (left)
8	a122GC16	Adj. Screw (2)
9	a122GC11C	Table
10	103GC7	Nut (2)
11	103GC5	Stop Plate (upper)
12	103GC4	Stop Plate (lower)
13	103GC8	Sleeve (2)
14	Xa103GC	Pump Body
15	a105GC11	Pin
16	a105GC10	Fulcrum Pin
17	a105GC1	Lifting Lever (piston end)
18	a105GC9	Clamp Screw
19	158GC1	Adjusting Pin
20	a48GC14	Adj. Lug (right)
21	a122GC16	Adj. Screw (2)
22	a122GC17	Stud
23	Xa30GC	Gas Burner
24	a48GC29	Screw (3)
25	a48GC30	Washer (3)
26	b54GC3	Nozzle Seat
27	b54GC12	Guide Plate (rear)
28	b54GC10	" " (front)

Figure 3

Part No.	Symbol	Name
1	108GC5	Lock Nut
2	108GC4	Nut
3	109GC1	Lever
4	122GC4	Bushing
5	a108GC8	Washer
6	a108GC9	Nut
7	a108GC10	Lock Nut
8	a108GC7	Nut
9	a108GC6	Washer
10	122GC1	Swing Frame
11	a108GC2	Extension
12	109GC2	Pin
13	109GC4	Stand
14	a108GC1	Rod
15	a106GC1C	Lifting Lever (nozzle end)

Figure 4

Part No.	Symbol	Name
1	110GC11	Nut (upper)
2	110GC3	Crosshead
3	110GC12	Sleeve (3)
4	110GC2	Rod
5	110GC12	Sleeve (3)
6	a110GC14	Abutment (2)
7	a110GC1	Spring
8	a110GC14	Abutment (2)
9	110GC12	Sleeve (3)
10	42GC1	Main Stand
11	110GC13	Stop Nut (2)
12	110GC13	Stop Nut (2)
13	97GC5	Nut
14	97GC4	Crosshead (upper)
15	42GC1	Main Stand
16	97GC1	Operating Rod
17	100GC1	Connecting Rod
18	100GC14	Lock Nut
19	100GC13	Eye (rear)
20	100GC15	Pin
21	99GC1	Bell Crank
22	101GC1	Shaft
23	97GC3	Dowel
24	a97GC2	Crosshead (lower)

Figure 5

Part No.	Symbol	Name
1	98GC3	Rod
2	98GC1	Spring (outside)
3	49GC1	Chimney
4	41GC2C	Shaft
5	41GC5	Lock Nut
6	41GC4	Nut
7	41GC1	Latch Stand
8	41GC6	Spring
9	37GC1	Latch Abutment
10	a38GC1	Spring
11	a108GC1	Operating Rod
12	108GC5	Lock Nut
13	108GC4	Nut
14	109GC1	Lever
15	109GC4	Stand
16	110GC12	Sleeve (3)
17	a110GC14	Abutment (2)
18	a110GC1	Spring
19	122GC1	Swing Frame
20	a110GC14	Abutment (2)
21	110GC12	Sleeve (3)
22	99GC1	Bell Crank
23	a97GC2	Crosshead (lower)
24	97GC1	Operating Rod
25	110GC13	Stop Nut (2)
26	110GC13	Stop Nut (2)
27	100GC1	Connecting Rod
28	100GC14	Lock Nut
29	100GC13	Eye (rear)
30	100GC15	Eye Pin
31	100GC16	Cotter (2)
32	101GC1	Shaft
33	100GC12	Lock Nut
34	112GC2	Pin
35	100GC11	Spring Clip
36	100GC3C	Gag Block
37	100GC5	Fulcrum Pin
38	100GC7C	Handle
39	100GC2	Eye (front)
40	112GC1C	Pump Cam Lever
41	9GC2	Fulcrum Pin
42	36GC1C	Latch
43	110GC9	Stop
44	97GC5	Nut
45	97GC4	Crosshead (upper)
46	42GC1	Main Stand
47	110GC3	Crosshead
48	110GC10	Nut
49	97GC1	Operating Rod
50	98GC9	Spring (inside)

Figure 6

Part No.	Symbol	Name
1	a95GC1	Piston
2	103GC7	Nut (2)
3	103GC5	Stop Plate (upper)
4	103GC4	Stop Plate (lower)
5	103GC6	Stud (2)
6	113GC2	Pin (2)
7	96GC1	Piston Lever
8	113GC4	Plunger
9	113GC5	Spring
10	113GC1	Link
11	110GC9	Stop
12	97GC4	Crosshead (upper)
13	110GC11	Nut (upper)
14	110GC3	Crosshead
15	110GC6	Pin
16	110GC2	Rod
17	104GC1	Lever

Figure 7

Part No.	Symbol	Name
1	98GC3	Rod
2	98GC9	Spring (inside)
3	98GC1	Spring (outside)
4	98GC2	Abutment
5	160GC2	Stud
6	160GC1	Gag Plate (2)
7	97GC6	Stud
8	97GC7	Lock Nut
9	97GC4	Crosshead (upper)
10	37GC1	Abutment
11	110GC5	Nut
12	41GC2C	Shaft
13	41GC5	Lock Nut
14	41GC4	Nut
15	41GC1	Latch Stand
16	36GC1C	Latch
17	41GC6	Spring
18	36GC2	Latch Plate
19	37GC2	Abutment Plate
20	37GC3	Screw (2)
21	a38GC1	Spring
22	98GC4	Rod Eye
23	110GC4	Crosshead Eye

Figure 8

Part No.	Symbol	Name
1	97GC1	Rod
2	97GC5	Nut
3	110GC9	Stop
4	97GC4	Crosshead (upper)
5	97GC6	Stud
6	97GC7	Lock Nut
7	109GC1	Lever

Figure 9

Part No.	Symbol	Name
1	96GC1	Piston Lever
2	109GC1	Lever
3	109GC2	Pin
4	a108GC1	Rod
5	108GC5	Lock Nut
6	108GC4	Nut
7	109GC4	Stand

Figure 10

Part No.	Symbol	Name
1	92GC4	Nozzle (for GC & GS Molds)
	92GC9	Nozzle (for GC1 Molds)
2	92GC3	Lock Nut
3	a103GC19	Plug
4	a95GC1	Piston
5	Xa103GC	Pump Body
6	a103GC2	Bushing
7	103GC12	Valve Plug (side)
8	103GC9	Plug (bottom)
9	a103GC16	Nut
10	a103GC15	Regulating Screw
11	103GC13	Valve Seat
12	a103GC10	Valve
13	103GC11	Valve Plug (bottom)

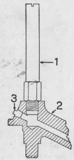


FIGURE 1
Squaring Pin in Nozzle End of Pump

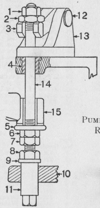


FIGURE 3
Pump-body Operating Rod Mechanism

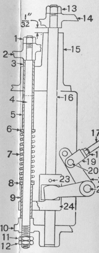


FIGURE 4
Pump-body-spring Rod, Piston Operating Rod and Pump Bell Crank Mechanism

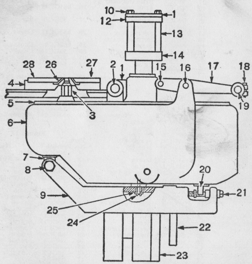
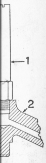


FIGURE 2
Melting Pot with Swing Frame, Pump, Levers and Burners

MELTING POT AND PUMP MECHANISM



URE 1
IN in NOZZLE
f PUMP

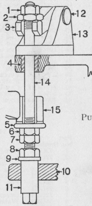


FIGURE 3
PUMP-BODY OPERATING
ROD Mechanism

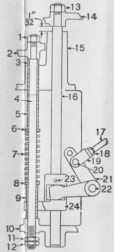


FIGURE 4
PUMP-BODY-SPRING ROD, PISTON
OPERATING ROD and PUMP
BELL CRANK Mechanism

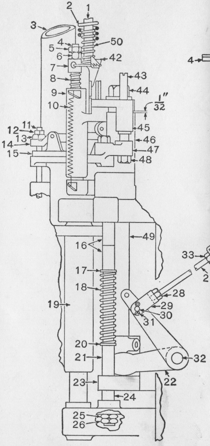


FIGURE 5
Mechanism for Operating, Adjusting
and Controlling the PUMP

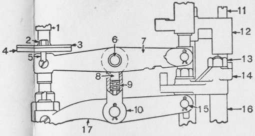
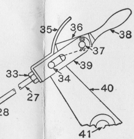


FIGURE 6
PUMP-BODY LEVERS and PISTON LEVERS



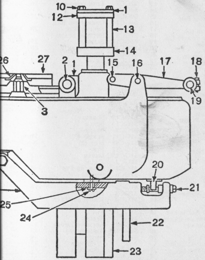
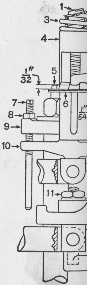


FIGURE 2
MELTING POT with SWING
FRAME, PUMP, LEVERS
and BURNERS

FIGURE 7
PUMP LATCH and GAG PLATES



OT AND PUMP MECHANISM

PLATE I
Figures 1 to 10
(Melting Pot and Pump)

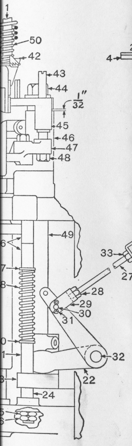


FIGURE 5
for Operating, Adjusting
ntrolling the PUMP

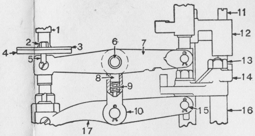


FIGURE 6
PUMP-BODY LEVERS and PISTON LEVERS

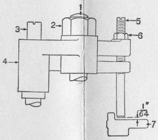


FIGURE 8
CROSS-HEAD STUD and PUMP OPERATING LEVER

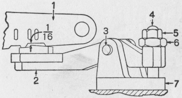
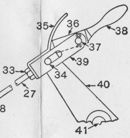


FIGURE 9
PISTON LEVER and PUMP OPERATING LEVER



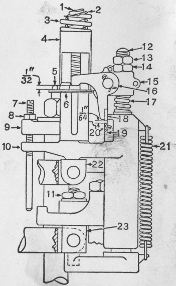


FIGURE 7
PUMP LATCH and GAG PLATES

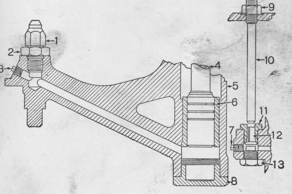


FIGURE 10
PUMP BODY, with PISTON, NOZZLE, INTAKE VALVE and PORT REGULATING SCREW

PLATE II

Figure 11

Part No.	Symbol	Name
1	58GC1	Stud
2	74GC8	Screw (2)
3	74GC10	Lock Nut (2)
4	74GC9	Nut (2)
5	74GC7	Cap
6	74GC6	Ball
7	74GC5C	Socket
8	74GC11	Lock Nut
9	74GC3	Lock Nut
10	74GC2	Nut
11	74GC24	Stud (long) (4)
12	74GC25	Nut (4)
13	74GC17	Cap (rear)
14	74GC15	Abutment (rear)
15	74GC12	Spring (inside)
16	74GC13	Spring (outer)
17	74GC16	Tube
18	74GC1C	Rod
19	74GC4	Head
20	74GC14	Abutment (front)
21	74GC18C	Socket (front)
22	74GC19	Ball
23	74GC20	Cap
24	74GC22	Nut (2)
25	74GC23	Lock Nut (2)
26	74GC21	Stud (2)

Figure 12

Part No.	Symbol	Name
1	51GC31	Stud
2	51GC29	Lever
3	51GC30	Stop Pin
4	51GC27	Spring
5	51GC28	Trip Lever
6	51GC32	Screw
7	51GC33	Lock Nut
8	65GC3	Stand
9	65GC4	Fulcrum Pin
10	72GC5	Nut (6)
11	72GC6	Washer (6)
12	72GC2	Lever (lower) (2)
13	72GC4	Bolt (6)
14	57GC1	Stand
15	42GC1	Main Stand
16	51GC9	Screw (3)
17	51GC12	Scale "A"
18	51GC13	Screw (3)
19	51GC7	Stand
20	51GC24	Pawl
21	51GC20	Ratchet
22	51GC25C	Lever
23	51GC34	Fulcrum Screw
24	67GC1C	Cover Plate
25	68GC1	Screw (4)
26	51GC46	Screw (2)
27	52GC6	Pin
28	52GC5	Eye
29	52GC8	Lock Nut
30	52GC1	Rod

Figure 13

Part No.	Symbol	Name
1	110GC9	Stop
2	a38GC1	Spring
3	37GC1	Latch Abutment
4	97GC4	Crosshead (upper)
5	110GC3	Crosshead
6	110GC10	Nut
7	110GC12	Sleeve (3)
8	97GC1	Operating Rod
9	a110GC14	Abutment (2)
10	a110GC1	Spring
11	52GC11	Spring
12	52GC9	Nut
13	52GC1	Operating Rod
14	100GC13	Eye (rear)
15	101GC1	Shaft
16	99GC1	Bell Crank
17	a97GC2	Crosshead (lower)
18	110GC13	Stop Nut (2)
19	110GC13	Stop Nut (2)
20	110GC2	Rod
21	100GC7C	Handle
22	a6GC1	Bridge Bracket
23	100GC11	Spring Clip
24	21GC1C	Cam Lever
25	100GC3C	Gag Block
26	100GC2	Eye (front)
27	44GC1C	Cam Lever
28	100GC12	Lock Nut
29	100GC1	Rod
30	9GC2	Fulcrum Pin
31	a9GC1	Stand
32	112GC1C	Cam Lever
33	149GC1	Screw (8)
34	100GC14	Lock Nut

Figure 14

Part No.	Symbol	Name
1	72GC5	Nut (6)
2	72GC8	Link (rear) (short)
3	73GC1	Link (rear) (long)
4	73GC2	Fulcrum Pin
5	56GC1	Pin
6	55GC1	Bell Crank
7	72GC1	Lever (upper) (2)
8	59GC4	Washer
9	57GC1	Stand
10	59GC3	Nut (upper)
11	59GC1	Stud (in stand)
12	58GC1	Stud (for ball)
13	72GC7	Link (center)
14	50GC12	Stand
15	50GC14	Screw (3)
16	64GC1	Operating Bar
17	X74GC	Spring Box
18	51GC1	Setting Scale
19	65GC1C	Slide
20	a51GC14	Gag Block
21	51GC15C	Lever
22	51GC37C	Shaft
23	51GC12	Scale "A"
24	72GC5	Nut (6)
25	72GC1	Lever (upper) (2)
26	72GC7	Link (center)
27	72GC2	Lever (lower) (2)
28	72GC4	Bolt (6)
29	57GC1	Stand
30	a51GC14	Gag Block

Figure 15

Part No.	Symbol	Name
1	51GC13	Screw (3)
2	51GC12	Scale "A"
3	51GC7	Stand
4	51GC11	Screw (3)
5	51GC43	Nut (2)
6	51GC17	Pin
7	51GC15C	Lever
8	51GC2	Drum
9	51GC3	Locking Pin
10	51GC6	Spring
11	52GC6	Pin
12	51GC5	Nut
13	52GC5	Eye
14	51GC4	Knurled Head
15	61GC1	Screw (short) (5)
16	51GC19	Pin
17	51GC18	Spring
18	51GC29	Locking Lever
19	51GC16	Abutment
20	51GC32	Adjusting Screw
21	51GC33	Lock Nut
22	65GC3	Stand
23	65GC5	Nut
24	72GC5	Nut (6)

Figure 16

Part No.	Symbol	Name
1	54GC19C	Packing Piece No. 0
2	54GC20	Side Plate
3	54GC23	Wedge
4	54GC22	Abutment
5	a53GC45	Squaring Plate
6	a53GC43	Point Block
7	53GC2	Mold Blade (rear)
8	53GC1	Mold Blade (front)
9	53GC11	Dowel
10	53GC7	Core (rear)
11	53GC5	Core (front)
12	53GC9	Stop
13	b54GC16C	Stop Plate
14	53GC48	Type Block (front)
15	53GC15C	Bolster (front)
16	b53GC30	Cross Block
17	53GC31	Shoe
18	53GC51	Pusher
19	129GC3	Stand
20	129GC1C	Lever
21	129GC2	Fulcrum Pin
22	a53GC36	Cover Plate
23	d53GC35	Bracket
24	46GC1C	Carrier
25	53GC20C	Mold Bolster (rear)
26	b53GC49	Type Block (rear)
27	53GC29	Separator (give pt. size)
28	b54GC12	Guide Plate (rear)
29	b54GC9	Closure
30	54GC14	Clamp
31	53GC50	Type Clamp
32	54GC7	Abutment Plate (2)
33	54GC1	Base Plate
34	b54GC10	Guide Plate (front)
35	b54GC3	Nozzle Seat
36	53GC34	Wearing Plate
37	a53GC129	Wedge
38	a53GC215	Wedge

Figure 17

Part No.	Symbol	Name
1	50GC6	Rod
2	50GC8	Lock Nut
3	50GC7	Nut
4	50GC10	Knob
5	50GC15	Wheel (graduated)
6	50GC4	Knob
7	50GC3C	Screw
8	50GC12	Stand
9	50GC2	Bearing
10	50GC1	Wedge
11	50GC17	Scale
12	50GC16	Gage (vertical)
13	50GC9C	Screw
14	69GC1	Spring
15	66GC1	Pin
16	59GC2	Nut (lower)
17	59GC1	Stud
18	50GC13	Cap
19	50GC19	Clamp Screw

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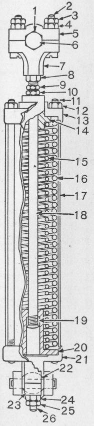


FIGURE 11
MOLD-BLADE SPRING BOX

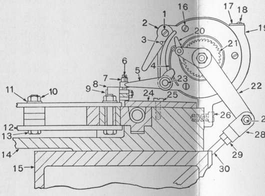


FIGURE 12
MICROMETER-WEDGE SETTING SCALE Mechanism (sometimes called "CALCULATING SCALE".)

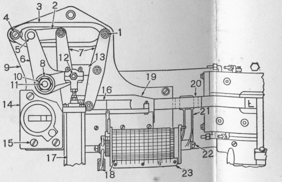


FIGURE 14
MOLD BLADE OPERATING Mechanism

CALCULATING, SIZING, AND MO

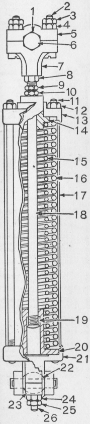


FIGURE 11
MOLD-BLADE SPRING BOX

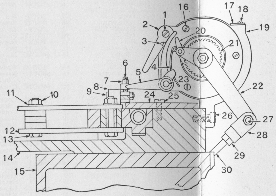


FIGURE 12
MICROMETER-WEDGE SETTING SCALE Mechanism (sometimes called "CALCULATING SCALE".)

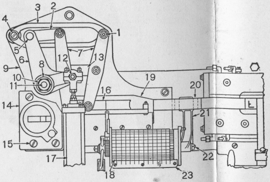


FIGURE 14
MOLD BLADE OPERATING Mechanism

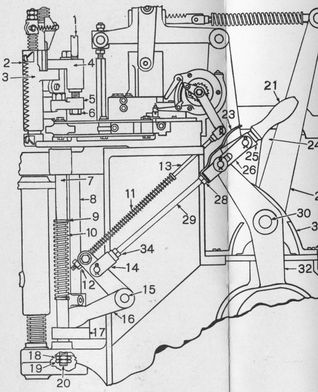
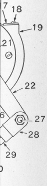


FIGURE 13
General Operating Mechanism for MICROMETER-WEDGE SETTING SCALE, PUMP and MATRIX

LCULATING, SIZING, AND MOLD MECHANISM



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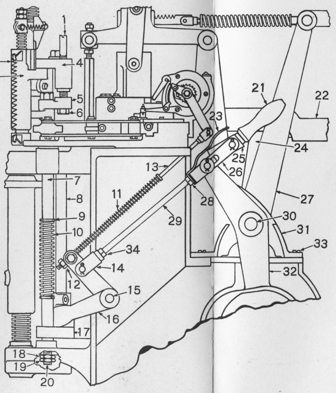


FIGURE 13
General Operating Mechanism for MICROMETER-WEDGE SETTING SCALE, PUMP and MATRIX

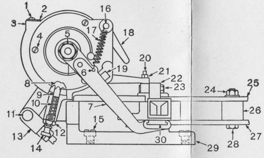


FIGURE 15
Non-fusing Mechanism

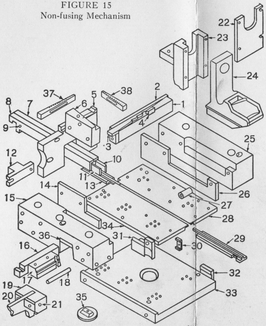
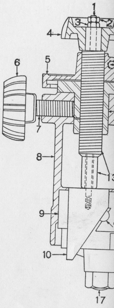


FIGURE 16
MOLD with MATRIX-HOLDER CARRI and BRACKET. (WEDGE 38 is used on on Style GC1 Molds.)



FIGUR
MICROMETER WED
GAGE and PICA

ZING, AND MOLD MECHANISM

PLATE II
Figures 11 to 17

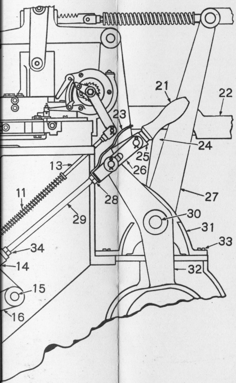


FIGURE 13
ating Mechanism for Micrometer-wedge
ting Scale, Pump and Matrix

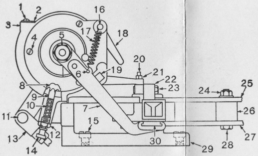


FIGURE 15
Non-fusing Mechanism

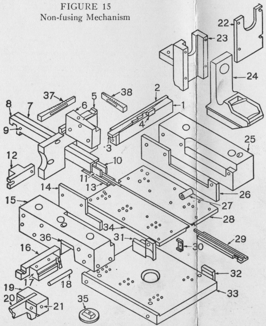


FIGURE 16
Mold with Matrix-holder Carrier and Bracket. (Wedge 38 is used only on Style GC1 Molds.)

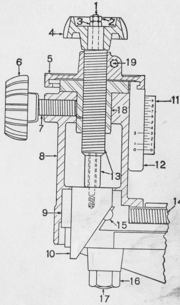


FIGURE 17
Micrometer Wedge with its Pica Gage and Pica-gage Scale

PLATE III

Figure 18

Part No.	Symbol	Name
1	129GC1C	Lever
2	141GC3	Spring Plate
3	129GC4	Spring Pin
4	141GC1	Spring
5	82GC1	Operating Rod
6	82GC8	Pin
7	82GC2	Adjusting Nut
8	82GC1	Operating Rod
9	82GC3	Lock Nut
10	87GC4	Lock Nut
11	87GC3	Forked Eye
12	87GC5	Pin
13	120GC2	Pin
14	120GC1C	Eccentric Shaft
15	121GC1	Stand
16	88GC4	Washer
17	88GC2	Nut (right)
18	88GC1	Stud
19	128GC1	Fulcrum Pin
20	85GC1	Key (2)
21	a83GC1	Closure Cam
22	84GC1	Bushing
23	12GC1	Cam Shaft
24	53GC27	Nut (3)
25	129GC3	Stand
26	129GC2	Fulcrum Pin
27	53GC51	Pusher
28	6GC15	Washer
29	6GC13	Stud
30	130GC4	Head
31	82GC5	Lock Nut
32	82GC4	Forked Eye
33	87GC8	Washer (large)
34	a87GC1	Buffer (leather)
35	87GC10	Sleeve
36	87GC7	Nut (2)
37	87GC2	Buffer Rod
38	87GC9	Washer
39	a23GC1	Galley Stand
40	130GC1	Operating Rod
41	130GC3	Nut
42	130GC2	Forked Eye
43	121GC1	Stand
44	120GC1C	Eccentric Shaft
45	127GC1C	Type Clamp Cam Lever
46	a86GC1C	Closure Cam Lever
47	a86GC3	Screw
48	127GC3	Nut
49	127GC2	Pin
50	a86GC2	Shoe

Figure 19

Part No.	Symbol	Name
1	78GC2	Socket
2	76GC1	Spring
3	b54GC9	Mold Closure
4	a75GC1	Abutment
5	79GC1	Bell Crank
6	80GC2	Plate
7	80GC1C	Fulcrum Pin
8	82GC6	Pin
9	27GC1	Screw (top) (2)
10	81GC1	Screw (2)
11	a23GC1	Galley Stand
12	77GC2	Nut
13	77GC1	Adjusting Rod
14	78GC1	Guide Rod

Figure 20

Part No.	Symbol	Name
1	7GC3	Forked Eye
2	7GC4	Lock Nut
3	a7GC15	Abutment (rear)
4	a7GC10	Spring (inner)
5	a7GC14	Spring (outer)
6	a7GC11	Abutment (front)
7	7GC9	Pin
8	7GC12	Sleeve
9	7GC8	Lock Nut
10	7GC13	Shield
11	7GC2	Operating Rod
12	6GC11	Pin
13	44GC1C	Matrix Cam Lever
14	5GC1C	Bridge
15	a6GC1	Bridge Bracket
16	46GC1C	Carrier (give pt. size)
17	6GC10	Coupling Screw
18	6GC9	Coupling
19	6GC8	Head
20	a6GC1	Bridge Bracket
21	a6GC7	Plug
22	6GC2C	Tube
23	a6GC3	Collar (2)
24	6GC16	Pin
25	150GC1	Screw (6)
26	7GC5C	Pin
27	5GC3	Pinion
28	5GC4	Shaft
29	a5GC12	Guard
30	7GC1	Rack
31	8GC2	Nut (2)
32	8GC3	Pin
33	8GC2	Nut (2)
34	5GC7	Bridge Link (2)
35	5GC10	Sleeve
36	8GC1	Bridge Support
37	5GC8	Pin
38	d53GC35	Carrier Bracket
39	54GC5	Shield
40	54GC6	Screw (4)
41	92GC4	Nozzle
42	53GC25	Through Bolt (2)
43	53GC27	Nut (3)
44	53GC28	Washer (6)
45	156GC2	Washer (3)
46	156GC1	Bolt (3)
47	156GC4	Bolt
48	53GC38	Bracket Screw (2)
49	b53GC30	Cross Block
50	21GC1C	Cross Block Cam Lever
51	a6GC6	Abutment
52	a6GC17	Spring (inner)
53	6GC5	Spring (outer)

Figure 21

Part No.	Symbol	Name
1	17GC3	Lock Nut
2	17GC2	Eye
3	17GC4	Pin
4	15GC1	Clutch Lever
5	16GC1	Fulcrum Pin
6	138GC1	Screw (4)
7	137GC1	Cover
8	133GC1	Worm Shaft
9	17GC1	Operating Rod
10	17GC7	Lock Nut
11	17GC6	Head
12	42GC1	Main Stand
13	134GC1	Shaft Stand

Figure 22

Part No.	Symbol	Name
1	161GC5	Handle
2	161GC14	Screw
3	161GC9	Rod
4	161GC6	Pin
5	161GC8	Roller (3)
6	161GC13	Support (front)
7	161GC1	Guide Bracket
8	161GC2	Clamp Screw
9	161GC3	Eccentric Shaft
10	161GC10	Support (rear)
11	161GC11	Pin
12	161GC12	Screw
13	161GC8	Roller (3)
14	161GC8	Roller (3)

Figure 23

Part No.	Symbol	Name
1	156GC2	Washer (3)
2	156GC1	Bolt (3)
3	53GC16	Elbow (2)
4	53GC149	Mold Bolster
5	53GC236	Cross Block
6	53GC243	Type Clamp
7	53GC107	Spring
8	53GC238	Adjusting Block
9	53GC242	Type Clamp
10	53GC51	Pusher
11	129GC11	Adjusting Screw
12	129GC8	Fulcrum Pin
13	129GC10	Intermediate Lever
14	142GC1	Screw
15	129GC12	Nut
16	129GC6	Stand
17	53GC28	Washer
18	53GC27	Nut
19	53GC26	Through Bolt
20	129GC5C	Lever (for solid material)
21	129GC4	Pin
22	129GC1C	Lever (for cored material)

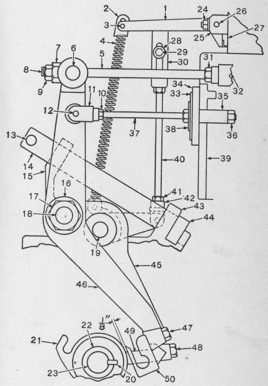
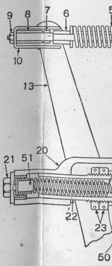


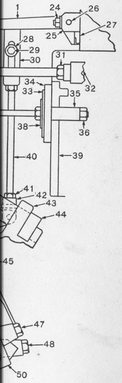
FIGURE 18
Type Clamp Operating Mechanism, Mold Closure Operating Mechanism and Starting Mechanism

MOLD

FIGURE 19
Mold-closure Abutment
Spring Mechanism



MOLD AND MATRIX OPERATING MECHANISM



8
Mold Closure Operating
Mechanism

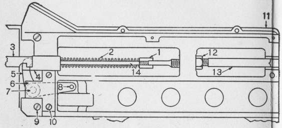
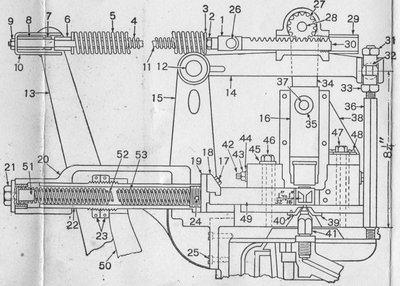


FIGURE 19
Mold-closure Abutment
Spring Mechanism



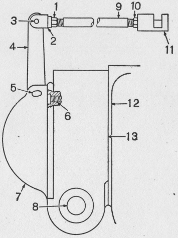


FIGURE 21
Clutch Operating Mechanism

FIGURE 20
Bridge Mechanism for Seating and
Raising the Matrix, also the Cross
Block Operating Mechanism

Type

RIX OPERATING MECHANISM

PLATE III
Figures 18 to 23

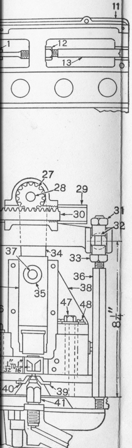


FIGURE 20
BRIDGE Mechanism for Seating and Raising the MATRIX, also the CROSS BLOCK Operating Mechanism

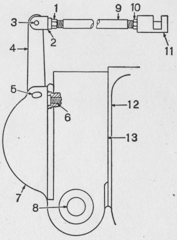


FIGURE 21
CLUTCH Operating Mechanism

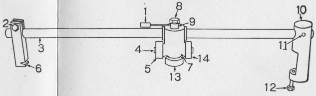


FIGURE 22
GUIDE BRACKET Mechanism for Straightening Material

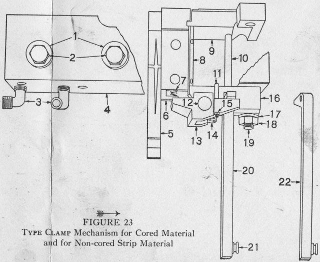


FIGURE 23
TYPE CLAMP Mechanism for Cored Material and for Non-cored Strip Material